

# SUPPLEMENT.

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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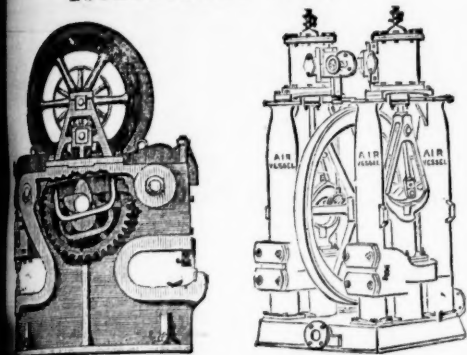
No. 2195.—VOL. XLVII.

LONDON, SATURDAY, SEPTEMBER 15, 1877.

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PARIS,  
BRONZE MEDAL, 1867.



ORDER OF THE CROWN OF PRUSSIA.



FALMOUTH,  
SILVER MEDAL, 1867

A DIPLOMA—HIGHEST OF ALL AWARDS—given by the  
Geographical Congress, Paris, 1875—M. Favre, Contractor, having  
exhibited the McKean Drill alone as the MODEL BORING MACHINE  
for the ST. GOTHARD TUNNEL.

SILVER MEDAL of the Highland and West of Scotland  
Agricultural Society, 1875—HIGHEST AWARD.

At the south end of the St. Gothard Tunnel, where

## THE MCKEAN ROCK DRILLS

Are exclusively used, the advance made during eight consecu-  
tive weeks, ending February 7, was 24-90, 27-60, 24-80, 26-10,  
28-30, 27-10, 28-40, 28-70 metres. Total advance of south head-  
ing during January was 121-30 metres, or 133 yards.

In a series of comparative trials made at the St. Gothard Tun-  
nel, the McKean Rock Drill continued to work until the pres-  
sure was reduced to one-half atmosphere ( $7\frac{1}{2}$  lbs.), showing  
almost the entire motive force to be available for the blow  
against the rock—a result of itself indicating many advantages.

The GREAT WESTERN RAILWAY has adopted these  
Machines for the SEVERN TUNNEL; the LONDON AND  
NORTH-WESTERN RAILWAY for the FESTINIOG TUN-  
NEL; and the BRITISH GOVERNMENT for several Public  
Works. A considerable number of Mining Companies are now  
using them. Shafts and Galleries are driven at from three to  
six times the speed of hand labour, according to the size and  
number of machines employed, and with important saving in  
cost. The ratio of advantage over hand labour is greatest  
where the rock is hardest.

These Machines possess many advantages, which give them  
a value unapproached by any other system of Boring Machine.

THE MCKEAN ROCK DRILL IS ATTAINING GENERAL  
USE THROUGHOUT THE WORLD FOR MINING, TUN-  
NELLING, QUARRYING, AND SUB-MARINE BORING.

The MCKEAN ROCK DRILLS are the most powerful—the  
most portable—the most durable—the most compact—of the  
best mechanical device. They contain the fewest parts—have  
no weak parts—act without SHOCK upon any of the operat-  
ing parts—work with a lower pressure than any other Rock  
Drill—may be worked at a higher pressure than any other  
—may be run with safety to FIFTEEN HUNDRED STROKES  
PER MINUTE—do not require a mechanic to work them—are  
the smallest, shortest, and lightest of all machines—will give  
the longest feed without change of tool—work with long or  
short stroke at pleasure of operator.

The SAME Machine may be used for sinking, drifting, or  
open work. Their working parts are best protected against  
grit and accidents. The various methods of mounting them  
are the most efficient.

N.B.—Correspondents should state particulars as to  
character of work in hand in writing us for information,  
on receipt of which a special definite answer, with  
reference to our full illustrated catalogue, will be sent.

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(Involving an entirely new principle in Mechanical Boring)

Requires only 20 lbs. steam or air-pressure.  
Has only two moving parts—thus ensuring freedom from de-  
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Is excessively light, and can be carried by one man, who can  
with the No. 1 size (weighing only 35 lbs.) drill 40 holes  
 $\frac{1}{2}$  in. diameter and 14 in. deep per minute, in the hardest Aber-  
deen granite for splitting purposes.

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TUNNELS, SINKING  
SHAFTS, AND PERFORMING  
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STRONGEST, & MOST EFFECTIVE  
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MR. GEORGE GREEN, ENGINEER, ABERYSTWTH  
SUPPLIES MACHINES under the above Company's Patents for  
DRESSING ALL METALLIC ORES. Dressing-floors having these Machines pos-  
sess the following advantages:—

- 1.—THEY ARE CHEAPER THAN ANY OTHER KIND IN FIRST OUTLAY.
- 2.—ONLY ABOUT ONE-FOURTH OF THE SPACE USUALLY OCCUPIED  
BY DRESSING-FLOORS IS REQUIRED.
- 3.—FROM 60 TO 70 PER CENT. OF THE LABOUR IN DRESSING, AND  
FROM 5 TO 10 PER CENT. OF ORE OTHERWISE LOST, IS SAVED.
- 4.—THEY ARE THE ONLY MACHINES THAT MAKE THE ORE CLEAN  
FOR MARKET AT ONE OPERATION.

They have been supplied to some of the principal mines in the United Kingdom  
and abroad—viz.,

The Greenside Mines, Patterdale, Cumberland; London Lead Company's Mines  
Darlington, Colberry, Nanthead, and Bollyhope; the Stoneroff and Greyside  
Mines, Hexham, Northumberland; Wanlockhead Mines, Abington, Scotland (the  
Duke of Buccleuch's); Bewick Partners, Haydon Bridge; the Old Darren, Esfa-  
mrwyn, and Ystumnen Mines, in Cardiganshire; Mr. Beaumont's W.B. Mines,  
Darlington; also Mr. Sewell, for Argentiferous Copper Mines, Peru; the Brate-  
berg Copper Mines, Norway, and Mines in Italy, Germany, United States of  
America, and Australia, from all of whom certificates of the complete efficiency of  
the system can be had.

WASTE HEAPS, consisting of refuse chads and skimpings of a  
former washing, containing a mixture of lead, blende, and sulphur,  
DRESSED TO A PROFIT.

Mr. BAINBRIDGE, C.E., of the London Company's Mines, Middleton-  
in-Teesdale, by Darlington, writing on the 20th March, 1876, says—"The yearly  
profit on our Nanthead waste heaps amounted last year to £800, besides the ma-  
chinery being occupied for some months in dressing ore-stuff from the mines. Of  
course, if it had been wholly engaged in dressing wastes our returns would have  
been greater; but it is giving us every satisfaction, and bringing the waste heaps  
into profitable use, which would otherwise remain dormant."

Mr. T. B. STEWART, Manager of the Duke of Buccleuch's Mines,  
Wanlockhead, Abington, N.B., writing on 20th March, 1876, says—"I have much  
pleasure in stating that a full and superior set of your Ore Dressing Machinery has  
been at work at these mines for fully a month, and each day as the moving parts  
become smoother, and those in charge understand the working of the machinery  
better, it gives increasing satisfaction, the ore being dressed more quickly, cheaply,  
and satisfactorily than by any other method."

Mr. BAINBRIDGE, speaking of machinery supplied Colberry Mines,  
says—"Your machinery saves fully one-half on old wages, and vastly more on the  
wages we have now to pay. Over and above the saving in cost is the saving in ore,  
which is a great much short of 10 per cent."

GREENSIDE MINE COMPANY, Patterdale, near Penrith, say—"The  
separation which they make is complete."

Mr. MONTAGUE BEALE says—"It will separate ore, however close  
the mechanical mixture, in such a way as no other machines can do."

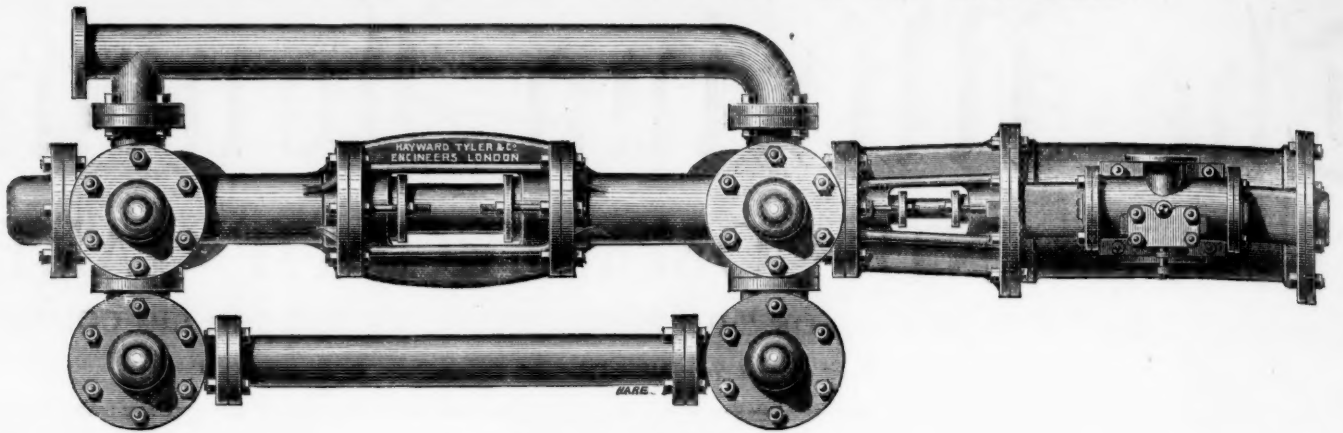
Mr. C. DODSWORTH says—"It is the very best for the purpose  
and will do for any kind of metallic ores—the very thing so long needed for dress-  
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Drawings, specifications, and estimates will be forwarded on application to—  
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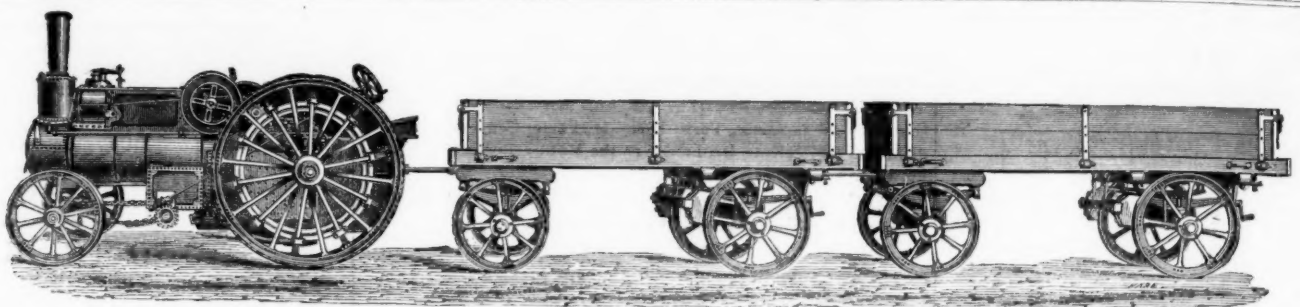
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See following extracts from the reports of Judges in awarding Medals:—

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"4.—The steam or

air cushions at each end of cylinder effectually protect from injury

"5. Its having an automatic feed, giving it a steady motion, &c.

"6. Its greater steadiness and absence of jar and vibration experienced in other drills, which is very destructive to their working parts, &c.

"7. Its greater power is some FORTY PER CENT. in favour of the Ingersoll."

Medals awarded for several years in succession "For the reason that we adjudge it so important in its use and complete in its construction as to supplant every article previously used for accomplishing the same purpose."

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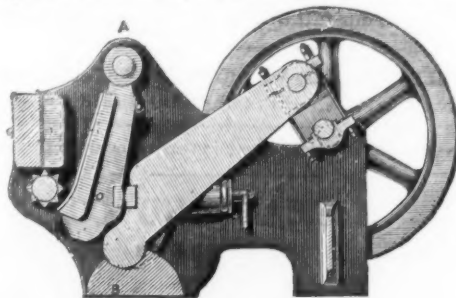
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Machines with combined Vertical Jaw and

**CUBING ROLLER.**

Guaranteed to break more cubical and to make less small than any other Machine.

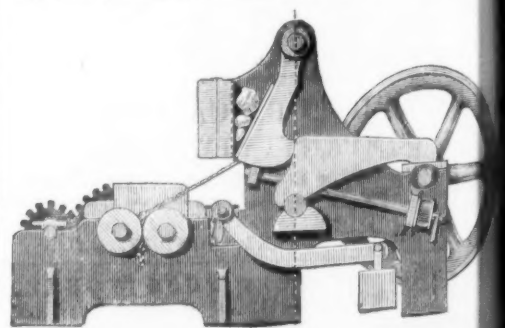
Simple Machines, with plain Vertical Jaws, without Roller.



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Original Correspondence.

ROCK-BORING MACHINERY—No. VII.

**CARRIAGES.**—The effective working of boring-machines is more dependent on the construction and weight of the carriage on which they are mounted. If the face of a heading is of moderately even rock, and the work is to be done quickly, several machines may be mounted together in such a manner that each can operate on a small but distinct portion of the face. Further, if time, as it were, is of primary importance, the work of fastening the carriage to the sides or roof of the level may be dispensed with; in such case, the carriage must be of sufficient weight to absorb the recoil arising from the machines when in full operation. When a large number of men are employed, their labour being entirely in connection with the boring machines, it is important to save from 20 minutes in fixing the carriage. If four "cuts" or "advances" are made in 24 hours, as at St. Gothard, the time taken in simply fastening and unfastening the carriage would be 2 hours, or 12 hours weekly. On the other hand, a cumbersome carriage in a mine level would be scarcely admissible, nor is it of equal importance in point of economy, as in the case referred to, since it must always happen, with the exception of some particular work, that mine headings will be driven by the "fast speed tackle" employed in rail-roads and special tunnelling. For mining purposes, therefore, the miners have suggested a lightly-formed carriage, with means for fastening it to the sides or roof of the level and vertical or horizontal bars, constituting a stand, for carrying the machines.

When boring machines it is either necessary that the tools should have very easy play—in other words, be free from any restraint on the line of the hole—or that the machines are attached to the retaining bars, so that the tools cannot deviate from the position of the hole. If, in the latter case, any movement from the position of the machine should occur the tool will drag and itself on the side of the hole, the force of the cutting blow will be more or less dissipated, or, perhaps, the tool will "bind" the machine, while a tool worked in this way, deprived of the roundness and rounded at the point, will form a taper, not a straight hole, and cause the next tool with its fresh cutting edge to be itself tight in the taper part of the hole referred to. The construction of the carriage and attachment of the boring machines is, therefore, a very important part of rock-boring apparatus.

**STRETCHER BAR.**—The Mont Cenis carriage held the boring machines, and withstood the reactive force of the blows by its own weight. This weight was 17½ tons. While the machines were in use one or two of the workmen frequently placed a piece of wood between the carriage and roof, to prevent a backward movement of the former. The boring machines were articulated to vertical bars, and allowed to play to and from the line of the holes. At St. Gothard a similar method of mounting the machines was employed. At the commencement of the heading a carriage weighing 4 to 5 tons was employed; but this was found too light to withstand the force of the blows, and a heavier carriage was subsequently adopted:—

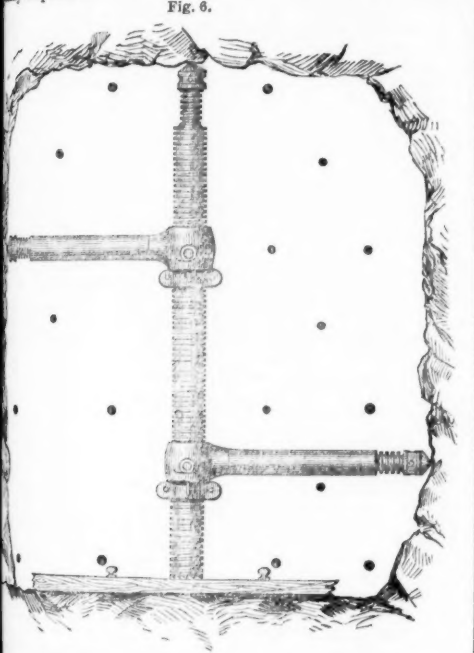
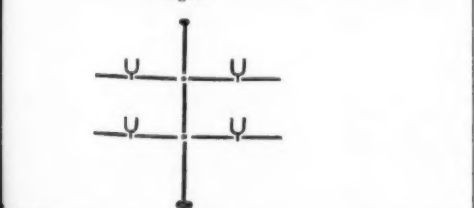


Fig. 6.

**STANDS.**—One of the stands employed by myself for running headings is composed of a vertical bar and two horizontal bars, set at a given distance apart. On each bar a machine is clamped; the side bars are set so as to require but once to be moved to bore the whole number of holes. In order to use this stand with ease and facility; it is taken to and from the face by means of a small trolley arranged for that purpose. This trolley is provided with a small platform for holding the boring machine, as shown in Fig. 7. The arrangement of this stand is such as to admit of the holes and blasting the ground in vertical or horizontal direction as may be desired.

Another form of stand sometimes employed is formed of two vertical bars, set at a given distance apart. On each bar a machine is clamped, and radiates right and left, in order to bore the shot-holes. In order to perforate each half of the face the machines are raised, lowered, and clamped to the bars. This form of stand is adapted for removing the ground by means of vertical or horizontal bars, as shown in Fig. 7.

Fig. 7.

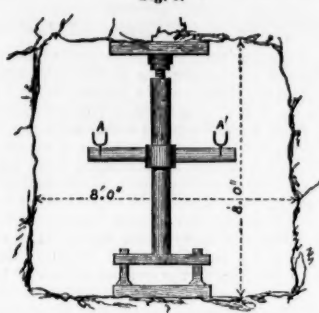


The general form of the stand in use at the Severn Tunnel at Portsmouth, and which carries two of the Geach boring machines, is shown in Fig. 8. It consists of a platform carriage—a vertical bar is screwed fast to the roof, a chock of wood intervening between the end of the screw and the rock. The vertical bar is about 5½ ft. long. The horizontal bar, from end to end, is set about 4 ft. from the sole of the level. In this position the machines on the bar at A' angle up and down and can be clamped on the face and bore the necessary shot-holes. The carriage for mounting four machines is 10 feet long, and is adapted for drilling such holes as are considered necessary for the removal of the ground. The boring machines are clamped to the horizontal bar.

The stand or carriage designed by François and Dubois has been

extensively used on the Continent. In this carriage the ends of the boring machines are attached to vertical bars, so placed that the

Fig. 8.



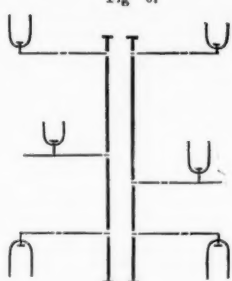
of considerable weight. It is simply run to and from the heading with the machines on the bars and holding frames.

Figs. 9 and 10 are diagrammatic illustrations of stands for carrying four and six boring machines. The horizontal bars and machines are so placed as to allow of the perforation of the forebreast without altering their normal position.

Fig. 9.



Fig. 10.



**STRETCHER BAR.**—This bar is simply fixed against the sides or roof and floor of the level, by merely lengthening it when in position. The machine is fixed to this bar by means of a clamp, which when loosened allows it to be directed at the desired angle. In order to use the stretcher-bar the machine must be very light.

**SHAFT-SINKING STANDS.**—Hitherto most of the boring machines employed for shaft-sinking purposes have been mounted on a stretcher-bar. In the year 1874 Dubois and François constructed a stand for sinking a pit 10 ft. diameter at the Werister Colliery, Belgium. The stand, 24 ft. long, was formed of a wooden framework constituting its upper part, two vertical bars extending from the framework to the bottom of the shaft, and two horizontal bars, set 11½ ft. from the floor of the shaft, for carrying the machines. The horizontal bars were not fastened to the sides of the shaft, but the ends were clipped in an iron ring attached to the under part of the wooden frame. In the year 1876 a vertical bar, with two rotating arms, the latter carrying the machines, was introduced at Minera. The bar was 12 ft. long, and during the sinking operation was kept in position by clipping it to a piece of timber fixed across the shaft, which timber subsequently served as the "dividing piece" between the winding and pumping part of the shaft. Later the vertical bar was increased in length from 12 ft. to 18 ft.

JOHN DARLINGTON.

STAMPING.

SIR,—The courteous criticisms of your correspondents upon my letter, published in the Supplement to the Journal of Aug. 18, on the subject of Stamping Machinery, requires a reply. In tabulating the valuable figures supplied by your correspondent "X," I did not venture to insert any estimate of my own of the power required by the respective stamp mills, knowing how fallacious such calculations might be; as, apart from other incidents, there is the important one of friction, which varies according to the good or bad construction of the working parts, and the good or bad condition in which the stamps are kept by the attendants at the various mills, knowing that the same machine will vary its amount of work and consumption of power from these causes. I preferred, therefore, to tabulate the figures given in order to facilitate comparison on the part of your readers, and in doing so I merely stated that the 1½-horse power would amount to an average of 57½-horse power to the 100 tons of rock stamped by the American mills in the 24 hours.

I may unwittingly have understated the power required by the American stamps, and Mr. Cox may be nearer the truth when he calculates that the mills, Nos. 1 to 9, take in all 1565-horse power, which gives an average of 174-horse power each, or equal to 91.91-horse power to stamp 100 tons of rock in 24 hours. In such case the comparison will be still more in favour of the stamp No. 10.

Of course, the matter of the waste of power by friction is a serious one in all machinery, and particularly in stamps, where the guide rods and bushes are sources of constant trouble in this respect. The Elephant Flexible stamps have exceptional advantages above all other stamps known in regard to this waste of power by friction, owing to their few working parts and the absence of guide rods, bushes, and tappets, the friction and wear and tear being thus reduced to a minimum.

Mr. Cox is in error in supposing that the Elephant stamp heads travel at the rate of 140 ft. per minute; the rate is actually 280 ft. per minute, being 140 ft. up and 140 ft. down each minute.

The force of the blows being in the direct ratio of the squares of their velocities, multiplied by the weight of the stamp, is well illustrated by the extraordinary range of power contained in a machine which is capable, by merely varying the speed, of imparting from the gentlest tap to the most shattering blow at the will of the attendant. Hardness of the rock is no difficulty to a machine so constructed. As regards the points on which Mr. Cox asks information, the rock stamped was hard granitic elvan. The other particulars, doubtless, Messrs. Willoughby Brothers, the makers of the machines, will gladly supply.

M. P.

COLLIERY MANAGERS' ASSOCIATION.

SIR,—I would not have troubled you on this subject at present, had it not been for the uncalculated statement in last week's Journal by "Manager"—"that a council of the quality required cannot be formed by picking promiscuously among the holders of certificates of service, which are but too well known to be no guarantee for technical ability."

From this statement the inference is that the knowingness of a guarantee for technical ability consists in the knowledge of the possession of what the Legislature has called a certificate of competency. This is a guarantee of technical ability. I wonder if it never occurred to these people that the name was given by the Legislature as a distinction only from those who were entitled to certificates from service. The appellation competency is in itself wrong, and grievously insulting to those who at the time of the passing of the Act were managers of collieries, and had there been such an association as the one now proposed would not have been allowed to be incorporated in an Act of Parliament. Were the certificates called "Certificates of Examination" it would be understood what they are. I have some knowledge of examinations and the examiners, and I have reason to believe that were every member constituting the examiners under the Act asked as to the competency of those who have passed their examinations they would, I believe, reply "that the candidates had passed their examinations, but as to their competency to manage collieries they could not say."

In consequence of the term "competency," all concerned are in

a false position—the examiners, the possessors, and the proprietors of collieries.

It is likely there are few men who have as many men they have trained holding the position of managers of collieries as the writer; amongst them are some six men now holding "C.C.'s," not one of them a whit better, but four of them a good deal worse.

And as to the guarantee of technical ability by the possession of a "C.C.," it is, like the whole thread of it, a misunderstanding. I know such a possessor who to this day, in the effulgence of his ability, cannot, and never could, inform you if relating something he had seen in a newspaper whether it was an article, a paragraph, or correspondence. I will not lengthen on this at this time, except just to state that this very day I have had an application from a holder of a "C.C." for manual work. I might though be pardoned asking, Who are they that have supplied the mining literature before and since 1872? ANOTHER MANAGER.

THE TECOMA MINE.

SIR,—Some six months ago there were three mines in the list all about 5s. to 10s. the 10s. shares. I mean the Flag-staff, Last Chance, and Tecoma. Since then Flag-staff has improved to 3s., and Last Chance to 1s., whilst Tecoma, after advancing to ½s. buy-rs, remains at ½s. sellers. I would point out to anyone thinking of investing in this stock, or to any old holders hesitating about averaging shares that may have cost them high, the inadvisability of delaying purchasing or averaging while shares are as cheap as they are, and when a short wire from the mine may at any moment make prices tip up, as prices have already done in the case of Flagstaff and Last Chance. I would also point out that Flagstaff and Last Chance stock had its rise in one day. For my own part I have several hundred shares, bought low, which I have put to sleep for the present, quite satisfied in my own mind to wait for the turn of luck which I believe Tecoma, like the two other mines I have named, will have shortly. Sept. 8. ONYX FARNHAM.

THE SAN JUAN SILVER MINES.

SIR,—Since my last appeared in the Journal, inviting correspondence regarding the San Juan Silver Mines, I have seen some of them, and been, therefore, able to answer with confidence the numerous letters I have received consequent upon your publication of mine. I have crossed the main range twice into Silverton, and seen the best mines of the Animas district, of which that village is the centre, and have been perfectly amazed at the wealth of mineral property lying there unproductive, owing to want of capital. One thing I may mention which will illustrate that fact—there are hundreds of tons of ore, running 30 to 50 ozs. of silver to the ton, lying about the dumps of the mines, and which will not pay to carry on pack animals three to six miles to the smelt mills. There is only one smelt mill in Silverton, owned by Greene and Co., and I think they give as much for the ores as they possibly can and make any profit. They had to bring all their machinery by wagon from the end of the railway (180 miles), and over a range of mountains 12,200 feet above tide water, at the summit of the Cunningham Gulch Pass, where they cross. In consequence they are running at immense expense, and can give but comparatively low prices for the ore; in fact, I have often heard the miners say that "100-oz. ore" is the lowest it will pay to take out.

Galena Mountain, six miles from Silverton, is full of immense veins of galena, carrying about 60 per cent. of lead, and running from 30 to 50 ozs. of silver to the ton, which will not pay largely to work, and why? Simply because there is no road from the outer world over the range, and the lead, which with a road would pay the carriage of the bullion to St. Louis refining works, is worthless. You will then say, naturally, "If there are such riches there, and a toll-road was built, there would be enormous travel over it, and it would not only revolutionise the mining district but pay largely in tolls; why, then, does not someone who has seen this build it?" It is easily explained. An Englishman of ample means, at the recommendation of a friend who lives here, came out last May to build this very road from Antelope Park to Silverton (40 miles). A responsible contractor and engineer offered to build it in three months for \$25,000; another responsible man offered to take the road on lease for five years, giving the owner 15 per cent. per annum, payable quarterly in advance, and going under heavy bonds to fulfil his agreement; and the towns of Silverton and Del Norte combined would have given him a bonus of 200 lots in the embryo town of Silverton, which lots in three years would be worth at least \$100 each. One would imagine an Englishman would think this a tolerably good investment of \$5000; so did this one till he saw the mines, and determined then to do what many had done before him—put his money into mines, and wait for someone else to build the road to make them worth anything. And thus it has gone on for four or five years.

The size and richness of the veins are certainly tempting, and men "lose their head." But if some "level-headed" man of sufficient means were to come here he could buy up mining property and town lots for a song, and then build the road and make them worth four times what he paid for them the moment the road was completed. Why, I saw 200 tons of ore on the dump of the Aspen Mine, on Hazelton Mountain, three miles from Silverton (the ore—galena—carrying 60 per cent. of lead, and running about 175 ozs. silver to the ton), which the moment a road was completed would be worth an advance of just 30 per cent. Greene and Co. offered a lump sum of \$15,000 for one pile of 100 tons, which was refused by the owners, they preferring to take schedule prices. The builder of the road could have made upwards of \$9000 by just buying up this ore, and holding it till the completion of the road, when the lead would have paid for shipping it.

Another trouble is that each mine has too many owners. Year by year the original discoverers have hung on, waiting for the road, and not getting it, and outsiders have bought in at a small sum to enable the others to keep themselves in "grub," and as sure as there are four or five owners they disagree, and will neither work nor allow their mine to be worked. I visited one mine, five miles from Silverton; the vein had split, and there was a 3 ft. vein of solid mineral on each side the "horse"—6 ft. of mineral when they come together, which will occur, judging from the dip, at about 50 ft. in depth. This was also galena, and a mill run of the ore, unassorted, gave 50 ozs. silver to the ton, and a lot of picked ore from the same 268 ozs. The veins were cut by a tunnel 100 ft. in, and the mine in first-rate shape. What are the owners doing? Sitting in the cabin at the mouth of the tunnel, eating their "grub," and doing nothing because they have disagreed. Greene and Co. offered to mine it, and give them \$5 per ton royalty. No, they would not do that; the ore was "richer lower down," then Green and Co. offered them a sliding scale of royalty, commencing at \$5, and increasing as the ore increased in value; but they would not do that, and there lies one of the finest mining properties I ever saw unproductive. Of course the owners are every minute expecting the everlasting capitalist to come round the corner and buy them out. The output of that mine if properly worked would be 20 tons per diem, and if a smelter were put up to treat the ore, there are a dozen galena veins all round it which would be worked, and their ore sent there to be treated. Mount Sneffels, one day's ride from Silverton, is beyond doubt, however, the richest and best district in the San Juan country; free milling ores carrying ruby and brittle silver, and plenty of veins of argentiferous galena besides, and I am now on my way to visit and examine it. The Wheel of Fortune is the best known and developed mine there, and they are sending the ore by pack animals to Van Gieson's lixiviation works at Lake City to be treated, at a cost to the miner of \$40 per ton for milling, and the same amount per ton for carriage. A lot of 20 tons just received there, when sampled and assayed, showed 800 ozs. silver to the ton.

No work of any account was done in Mount Sneffels since last winter, as it is quite a new district, but all the richest ores I have assayed have come from there, and it is being extensively prospected this summer. Works are badly needed there. No trouble about suitable fluxes, and abundance of timber and water-power. No coke as yet, but large veins of coal have just been discovered near by, whether suitable for coking or not I cannot say, but charcoal is cheap. I am going in there with my tent, pack animal, "grub,"



and tools, and shall stay a month and examine the Mount Sneffels district thoroughly, and shall be glad, as I said in my last, to answer all enquiries free of charge. I gave you my London references in my former letter. The trout fishing here is the finest in the world; plenty of bear, big-horns, deer, and antelope; grand scenery and fine air. All I want is for some of my countrymen, miners of experience, to come here and see for themselves. It only takes 15 days from Liverpool here—i.e., with an average sea voyage of 10 days. September and October the best months. W. WESTON.  
Del Norte, Rio Grande County, Colorado, Aug. 4.

#### THE FRONTINO AND BOLIVIA COMPANY.

SIR,—For some months past the Silencio Mine belonging to this company has given signs of extraordinary richness. Previous to the water getting in the mine the yield at the bottom of the shaft was 41 ozs. per day, and 75 ozs. at the bottom of the engine-shaft a little distance away. The water is now pumped out, and the mine, I suppose, will begin to return ore. Rich as this mine is I am of opinion that the Palmichala will some day beat it. In an old report Mr. White says:—"Two mines on the borders of the company's property (Saca and Cristales) yield—Saca, 260,000, profit on an outlay of 3000, and Cristales 71,000, profit in 11 months. The mine Colombia is close to these, and very rich, and the Palmichala veins of ore run from these mines." That Palmichala is a good mine was proved by the tributers. I cannot now say the yield per ton. If this mine does not prove as good a prize as the least of the two I have named I shall be surprised. Take a later report than the one I have quoted from—August, 1874. In this Mr. White says:—"Bolivia, Mira, Cristales, Palmichala, Silencio, and Colombia, increase in richness as they go downwards." If this was so in 1874 why should it not be so in 1877? When Mr. White penned this report in 1874 he did not foresee what a good mine Silencio would prove, but seemed to think more of the Palmichala, and from a very careful study of the reports—old and new—I shall expect when the Palmichala is well opened out to see it beat the Silencio. OLD SHAREHOLDER.

#### THE FRONTINO (ANTIOQUIA) COMPANY.

SIR,—I learn from the report recently issued by the directors that at the forthcoming meeting, to be held early next month, some plan is to be arranged to pay off the debt due from this company to the Frontino and Bolivia, amounting to about 5000. Now, as there can be only one way of meeting this claim if at once pressed, and that is by the issue of debentures, I hope the shareholders will not be too hard on the weaker company. The Frontino and Bolivia is doing remarkably well, and can afford to do without the 5000, for a time; at least until the Antioquia has got into paying ground, which, in all probability, they soon will do. Without forcing this money there is sufficient in hand to pay a dividend of 1s. per share on the Frontino and Bolivia shares. It is generally believed that nearly all the Antioquia shareholders are also Bolivia shareholders, but this is not quite correct. There can be no reason why the Bolivia should lend the Antioquia Company the money for nothing, as the prospects of the latter company are so good. I see from the last report that 1 oz. per ton may be looked for. A SHAREHOLDER.

#### NEW QUEBRADA COMPANY.

SIR,—I read with great interest the two letters which appeared in last week's Journal respecting the above company, and the fact of having myself been at the Aroa Mines so recently as June last may be sufficient reason for encroaching on your valuable space. Much has been written and said respecting the report by Mr. John Darlington, who I met at La Luz early in April last, but whatever inferences may have been drawn therefrom I can confidently say that the condition of the company's property is most promising, but it necessarily follows that constant and careful attention is required on the part of the management in opening up and developing the mines, also that grave responsibility rests with the board as to whom they intrust the administration of the company's affairs in Venezuela, and their selection has not always been of the most desirable nature, but I trust from the present they will be more fortunate. On each occasion when I visited the mines I was accompanied by Capt. John Harvey, who represented Messrs. John Taylor and Sons, in certain explorations which we were conducting on the adjoining property, and who had been for many years the manager of the Cobre Mines in Cuba, therefore I had the advantage of learning the views of an experienced miner, but unfortunately in consequence of instructions from London we were not permitted to enter the workings of the Aroa Mine, and so I can only speak as to what I saw at surface; notwithstanding this, however, we were able to form a tolerably clear opinion on many points of interest. As regards the ore on the floors, consisting of huge piles covering a considerable area of ground, a great proportion is yellow sulphuret, and there are also large quantities of the higher class or ruby ore, but I must say that of all the mines I have visited in various parts of the world I never yet beheld such disregard displayed as far as the dressing department is concerned. From personal observations I discovered that the ore as brought out of the mine in tram-trucks is shot out on to the heaps from which the sacks are filled and conveyed by donkeys to the railway at La Luz, thence to the coast and shipped without being submitted to even rough hand picking, the consequence is that a large percentage of killas and lodestuff is intermixed with the good ore, thus greatly lowering its value, increasing the cost of transit, and injuring the reputation of the mine. This could easily be obviated by the employment of women and children to pick it over, as in Cornwall. Respecting the yellow ore, of which there are such enormous quantities now at surface and yet to be won, I am satisfied that if smelted and reduced to regulus it would pay well, and this should be put into operation without any unnecessary delay.

I went underground at the Titara and Armaragua Mines, which present very favourable indications, but are not being worked by the company, and am confident that the lode here, which runs due north and south, is the same as that now being worked in the Aroa Mine, and therefore by following the lode from Aroa towards the Titara Mine a vast tract of mineral yet remains to be opened up, and that those who imagined that Mr. Darlington's remarks as to the quantity of ore available were intended to convey that it was the total amount of the company's wealth may dispel their fears, and rest assured that if the present management only follow Mr. Richardson's excellent and miner-like example of opening up in advance they need have no anxiety for the future.

The works now in progress at the mine are being conducted by Mr. Henry Francis, and I am sure that a more conscientious and intelligent manager it would be difficult to find, but at the time I was there he had too much work thrust upon him, having not only to perform the onerous duties of captain, but to act as purser, and do nearly all the office work at the mines, whereas at Tucacas the Quebrada and Bolivia Companies have a large staff, and I really think that some arrangement might be made to relieve Mr. Francis, in order that he may have more time at his command to attend to the mining operations. Seeing that the interests of the two companies are identical, I strongly advocate an amalgamation if it can be arranged.

I could write a great deal more, but must not trespass on your space. Suffice it to say that the railway is fast approaching completion, and although I much regret that it is not a 3 ft. gauge instead of a 2 feet, I certainly consider that it will thoroughly answer its purpose for some time to come. At a future date, when both companies have got into full operation I have no doubt that it will be advisable to widen the line, as apart from the copper to be brought down, an enormous amount of coffee and other produce from Bargmismeto and other districts in the interior will be sent over the line to the coast, but it is very important that the present freight should be reconsidered, as there is a danger if this is not done that a large source of income may be lost, as the planters and merchants regard the present charge as being exorbitant, and threaten to revert to the old route, by donkey carriage, to Puerto Cabello, via San Felipe. I may remark that during our stay in the country both Capt. Harvey and myself enjoyed excellent health, although we un-

derwent much fatigue and exposure in carrying on our explorations in the Buena Vista Mountains. W. W. BIRD.  
Great Winchester-street, Sept. 13.

#### THE HULTAFALL (SWEDEN) MINING COMPANY.

SIR,—Pressing engagements have prevented an earlier completion of my examination of the samples of Hultafall lead and zinc ores, which I took from the heap that Mr. Batters showed me at the mining office in London. I now beg to hand you the following report:—

By hand picking a considerable assortment may be effected with ease into ore containing a large proportion of galena with a small quantity of blende, into ore containing a large quantity of blende with a small quantity of galena, and into ore containing nearly equal quantities of each. The ores can be easily crushed and prepared for the continuous system of dressing by jigging and other apparatus, which is now being extensively and successfully employed for the treatment of similar ores. There will be no difficulty in dressing the ores so as to produce in the case of galena 70 to 75 per cent. of lead, and the blende so as to produce about 54 per cent. of zinc, which by calcination may be increased to about 63 per cent.

I have experimented on the calcination of the blende, and found no difficulty in reducing the sulphur in it from 29.65 to 1.43 per cent. I have no doubt that with a slight modification in the construction of our calciner it may be most advantageously employed for the treatment of this ore.

The sample of calcined blende from the Vieille Montagne Company's works with which you supplied me, I find to contain 2.43 per cent. of sulphur. A sample picked out as containing much galena, with little blende, produced—

Lead	...	...	49.60 per cent.
Silver	...	...	10.22 ozs. per ton.
Another sample containing much blende, with a little galena, contained—			
Silver	...	...	5.68 ozs. per ton.
By vanning I easily separated the ore into—			
Galena	...	...	70 per cent.
Blende	...	...	20 "
Earthy matter	...	...	10 "
Total	...	...	100 per cent.

I have carefully gone through the reports of Messrs. Waters, Southey, and Gregory; it is evident from their careful statements that you have a very valuable property, which requires only prompt and efficient management to produce very profitable results.

Portland-square, Plymouth, Sept. 8.

ROBERT OXLAND.

#### HULTAFALL (SWEDEN) MINING COMPANY.

SIR,—As one of the earliest advocates of the Hultafall Mining Company, I have great pleasure in submitting the following facts respecting the prospects of this undertaking:—

Capt. Waters states that from an average sample taken from the bottom of the mine, and washed by himself, the yield of lead was 25 per cent., and of blende 50 per cent.; and as the company is at present putting up machinery to treat 60 tons per day, the inference is that it would yield 45 tons per day of dressed mineral, and making ample allowances—say, 30 tons, or one-half, at 25 working days per month, 25 × 30 = 750 tons of dressed mineral per month, of which one-third would be lead and two-thirds blende.

Taking lead at 15s. per ton, as it contains upwards of 20 ozs. of silver to the ton, we have 250 tons, at 15s. ... £3750  
Taking blende at 4s. per ton we have 500 tons, at 4s. ... 2000

Total ... £5750  
Deducting costs at the outside figure of ... 2000

Gives a monthly profit of ... £3750

As the capital of the company consists of 12,000 shares of 5s. each—60,000—this monthly profit would be equivalent to 75 per cent. per annum upon the gross capital, or 45,000, annually upon 60,000. This could undoubtedly be largely increased, and this result ought to be arrived at with vigorous working in, certainly, 12 months' time. The report is amply confirmed by Capt. Southey, of West Chiverton, and also by Mr. T. Currie Gregory. The present appearance of the mine fully corroborates these statements, and certainly the Hultafall Company bids fair to be one of the most profitable which has ever been brought before the British public. Van shares pay at the rate of 3s. 4s. per share per annum, and the shares stand at 32s. per share; it is not, therefore, too much to expect to see these shares attaining an equally good market price within the space of a very short time. In the present depressed state of markets it is difficult to make people believe that so good a concern can actually exist, but it is in times like the present that opportunities offer by which large sums of money can be made, which at ordinary periods cannot be secured. W. H. BUMPUS.  
Threadneedle-street, Sept. 14.

#### MINING IN NEW SOUTH WALES.

SIR,—The mining industry here is still "suffering a recovery," and unless some sudden unexpected "finds" take place is likely to do so for a time, whilst wool and meat keep their present high prices, and the consequent profits made by the banks enable them to give large and steady dividends, and pay high interest for deposits. Mining to really succeed requires the union of capital with enterprise, and the patience to wait for results, and when we are sufficiently adventurous and sensible to see this and carry it out our alluvial gold fields worked by hydraulics will rival the Californian ones, whilst our reefs evidently only want opening up at greater depths, as in all other mining countries, to yield as good results, for in the only two comparatively deep shafts sunk in the colony—the Star of Peace, Hill End, at the 690 ft. level, and the Great Victoria, at Adelong, at 800 ft.—really good gold has been struck, and with every appearance of improvement, and there are scores and scores of idle claims in the colony abandoned after sinking 50 or 100 feet because water came in, or the "shoot" pinched out, or the shareholders got impatient, which, with the outlay of 3000, or 4000, in deep sinking, would probably give large fortunes to the adventurers—in fact, we have done nothing more here as yet than "scratched" our reefs, and after scraping out the few hundred ounces near the surface, which were really only the indications of what was really worth working for deeper down in the solid "country" have jibbed at the "calls," and left off just when we ought to have gone on.

In COPPER there is a great deal of awaking up—in a quiet way as yet—through the railways now beginning to really open up the country, and so giving cheap carriage for the ores to the smelting works (about 90 miles inland from Sydney, where the coal measures finally break) at Bethanga, near the Victorian border to the south-west, some rich lodes have been partially opened up, and near Gundagai the Snowball Copper Mine is likely to prove a very great success, as in No. 1 shaft at 90 feet the lode is over 10 feet wide (yellow sulphurets), in No. 2 shaft at 70 feet the lode is 8 feet wide (black oxide and sulphurets), and in four other shafts going down in the lode blue and green carburets, &c. This was one of the abandoned leases during the collapse of the late mania, but the present manager (Mr. Sturt) had faith in it, leased it on tribute in conjunction with Mr. Peterson, of Hillend, and furnaces are now going up, a small township being formed, and every prospect of the proprietors making their "pile." There were but ten shares in it originally, and some of them were hawked about for 30s. each, and if Mr. Sturt had not stuck to his opinion and the work, and Mr. Peterson had not had the capital and courage to back it up, even such a property as this would have been now idle as one of the "swindles." Mr. Sturt has begun to open up lodes also at Mingrey Creek and Lanz's Creek, and his pluck and perseverance will probably open up a new field of wealth in the district, as it had hitherto been only a pastoral area. The Cowflat Copper Mine, too, which is about the nearest to Sydney, and closer to the coal measures, is getting seriously to work again, and with the large lodes and rich bunches here and there can scarcely fail to be a splendid property when fairly opened up. Benusan's Frogmoor also has its furnaces up at last, and is likely to be a success. The Pechwood and Goodrich I hear are also looking well, and alto-

gether copper is certainly coming to the front. Galena and other ferrous galena, though known to exist at Mylora (where a lode 18 inches thick in the side of a creek) and other places in the southern districts, has never been worked by us here beyond prospecting a few feet, and putting down one or two "pot holes," then dropping it altogether, but as the geological formation there is scarcely any doubt of the lodes being there.

IRON.—Within 100 miles of Sydney, and alongside the railway, there is a deposit of iron ores of various kinds, great thickness of high quality, with coal in the same land, extending over 3000 acres, but capitalists here will not work it while basal pays 25 per cent. dividends.

COAL.—The demand both for the southern (Bulli) and New coal keeps up, and the Wallend, Waratah, and other northern companies are reaping a rich harvest. Most of the known seam area has three distinct seams in it at different depths, and just lately a new one has been discovered in a gully at about 1000 feet from the surface (under a 20 ft. covering of conglomerate which is over 13 ft. thick of splendid bituminous clean coal only two or three narrow bands in it, and as it is within 10 miles of Newcastle by rail, and only one mile from Lake Macquarie, mouth of which is now being deepened by the Government, three or four leases of the known Wallend area have a nice addition to their virtual monopoly of this pick of the coal fields of the colony, and with the continuous increase of steam traffic to sea a rich coal field is doubtless a better property than a whole field, and there is of a necessity a great future for the whole Newcastle and Bulli districts.

Sydney, New South Wales, July, 1877.

R. D. A.

#### ST. JOHN DEL REY COMPANY.

SIR,—It is a curious circumstance that the proprietors of the stamps and arrastres on the Praia at Morro Velho manage to get a good living out of the stuff that the late administrator Gordon, had got as much as he could out of. I suppose the schoolmaster knew no better. The same sort of waste was years ago at Don Pedro North del Rey till they sent a miner with a head there. The consequence is that the people who wash the river at Morro St. Anna for the gold the company cannot live at what they can now find, because the additional so admirably constructed preserve the gold for the company the people who used to wash for themselves have come in works to assist the company. That is the way to do your the company.—Ouro Preto, Aug. 17.

#### LIMITED LIABILITY.

SIR,—With reference to the subject of limited liability companies introduced by "J. H. R." I should like to express a decided opinion that these companies have, taken as a whole, been of no advantage to the country; in fact, that they have done much more harm than good.

1.—They have done much to cause an excessive over production of capital, and a "J. H. R." has pointed out. At both in the case of old concerns taken over and transformed companies and in cases where new companies were formed, as regards old concerns taken over, many of them were old and worthless that they would ere long have died a natural death, and their disappearance would have been a great relief to their having a new lease of life given them as limited companies. And in the case of new companies, too often there was no consideration as to whether they were really wanted, or whether their production could permanently be taken off at a profit, primary object was merely to float the company, and, if that be done, little else was cared for. Under the old system of enterprise new concerns would not spring up unless the promoters believed them likely to be permanently successful, then over production was found to occur in seasons of prosperity, when men's minds became too sanguine. How much was it likely under the limited liability system, when it became sole business of a large class of people to float as many companies as they could, whether they were likely to succeed or not.

2.—The management of all ordinary businesses can be well carried on by a board of directors as by private enterprise, therefore the introduction of this inferior system of management must act badly for the country. It is needless to dilate on this. Even men of ability find it about as much as they can do to successfully their own business to which they have been trained their lives. How then can any sane man, or body of men, do much at a large business entirely novel to them? It may be years before they are really masters of it. Some of the directors may have interests antagonistic to the interests of the company, and may, in fact, have accepted their places, as I have known, for the sake of the business they hoped to get from the company themselves or their friends.

3.—These companies have done much harm to public morals both in their formation and subsequent management, and upon it, whatever injures morals will in the long run injure prosperity. The misrepresentation and trickery so freely employed in floating many companies have by this time been pretty fully exposed, and many people are now rather ashamed of the dirty tricks they took part in. As regards some of the most notorious of companies, everything about them was base and demoralising, swindling on the largest scale. The ordinary course of affairs in something in this fashion. The vendors had a business which on its last legs. They agreed to sell it for, say, 20,000, or perhaps 7000, was to go to the promoters and directors of the company. For the sake of their share of this plunder these promoters and directors were doing their best to persuade everyone they—even their dearest friends and relatives—to put their money in the new company. Again, the evil did not cease when the companies were formed. The new directors being ignorant of the business, and often residing at a distance, in many cases far too power was left in the hands of the managers and foremen, and abuses were the natural consequence. There was a frightful amount of the money of the new company so lavishly subscribed. Some it seemed as though everyone in the neighbourhood, even the generally honest enough, thought the limited company fair for cheating and over charging. A good deal of this has, of passed away now. As a permanent thing, however, I think management by a board is not as favourable to good morals as a private management. It is an old saying and a true that "A man has no conscience." The conscience of the least scrupulous among the directors for the more honest will hardly take the responsibility of opposing doubtful practices which the other members say are necessary for the success of the business—especially if things are not progressing so well. A private trader can say, "I will lose a customer rather than do that which I do not think right." But even among a few men it becomes difficult to settle questions of this sort, and the board it is still more difficult.

On the whole, I cannot help coming to the lamentable conclusion, as regards the majority of the limited companies, the promoters of these companies, the brokers who have sold the shares, and the shareholders who have bought them, have all been wasting time and rather doing harm than good. As to the promoters, would have served their country better if they had lain in bed the time or jumped into the sea. The country is not a penny the better for their work, but, on the contrary, poorer. They got money out of the pockets of the shareholders, but they given the shareholders no proper equivalent for this money, and too many cases they never intended to. Their career represented very antipodes of good, honest, useful work.

There are, of course, a certain number of limited companies every way good and sound, and others again which may be moderately good. The best results seem to have been attained by the limited principle has been cautiously applied to sound concerns. In these instances the old partners have retained the management of the business, and have no intention of running



it; and by far the larger part of the shares are held by them  
and their workpeople or employees.

### THE FUNCTIONS OF MINE INSPECTORS.

I have so uniformly concurred in your treatment of the  
Government of Mines that I venture to ask you to express  
my dissent from the closing observations you make in your  
issue of the 1st inst. on the suspension of the certificate  
of Mr. Newey at Dudley. Whilst you certainly concur in the  
suspension, you suggest that "It is much to be feared that even the  
Government Inspectors and their assistants are also far below the  
mark in this respect, and that the neglect of the Government  
inspector corresponds to the neglect of the part of certificated  
owners." And you proceed to insist on "a certain amount of  
responsibility" on the part of those officers who would, I fear, in prac-  
tice, be led to a confusion of responsibility antagonistic to the object  
of the inspection—the safer working of the mines. It is impossible  
for inspectors to exercise a really effective supervision. They can  
only impose responsibility to the proper parties, but the owners  
are not for a moment supposed that they can relieve them of the  
responsibility of preserving proper management and proper discipline.  
Government interference involves the great danger of weakening  
the sense of responsibility, and it would be mischievous if  
it were to be regarded as a supervising authority.

It is not to be denied that the local Inspector concerned; his career and the  
conduct of his exertions sufficiently do that (indeed, I may say that in  
the Staffordshire the last suggestion to be made would be that the  
Inspector shows any want of vigilance), but I desire to warn all in-  
terested in good colliery management against extending the objec-  
tion of the Government Inspector to any systematic supervision.  
It would then become a scapegoat for, instead of a terror to, care-  
less and inefficient managers. Let offenders be brought to book  
as to time, but by all means maintain in all directly con-  
nected with the sense of direct— RESPONSIBILITY.

### THE MANGANESE ORE DISTRICT.

In taking a survey the other day on the banks of the Tamar  
for English manganese—I found the din of machinery  
the clattering of hammers going on with more than usual ac-  
tivity in the midst of the rural occupations of the country. Consider-  
able advantage has been taken of the summer months to make the  
roads and extensions which were contemplated last spring at the  
works. Perhaps the greatest and most useful renovation  
and change is that which has taken place at Bowden Down.  
The new and substantial dressing-floors have been laid  
all over the place, and where some new apparatus of the  
approved description is being erected by the enterprising  
owner. The large manganese lode which was entered upon at the  
beginning of the year at Bowden Down has greatly increased in  
value. It has been proceeded with, and promises to be one of the  
most purest lodes in this country. The manganese mines at  
Bowden are also yielding some beautiful results, which pro-  
duce the large expenditure which has been slowly, but  
steadily, going on there for the last few years. C. E.

### SUCCESSFUL MINES, AND MINE CAPTAINS.

I very highly appreciate the remarks of your correspondent  
who appeared in your valuable Journal of July 14, headed—"A  
mine makes a good Capt." We are led to believe, and have  
long since, that it takes a man of experience, coupled with a  
degree of education, to work and keep aloft a poor mine, while,  
conversely, a rich mine will take care of itself; but it is as your  
correspondent said—"Nothing succeeds like success." The paths of  
rich mines, of Dolcoath, and Mr. William Teague, of Tin-  
croft, are exceedingly easily traced up, back even from their  
present position, to whom your correspondent refers. And when we say we  
are so man for getting hold of a good share of this world's goods,  
in a similar position, should consider themselves ex-  
tremely fortunate in getting hold of good mines, as it is not the  
mine that makes the man, but the man makes the mine. Stock-  
holders in regular dividend mines scarcely ever go into the accounts  
themselves; but that many faults of the agent are covered up, and  
unknown; while in a poor mine every penny or cent (as the  
case may be) of expense is investigated, as the same is coming direct  
to the stockholders' pockets, who in many instances are but badly  
served.

I have situated some thousands of miles from the country of  
the mine, and from which I have reference to in a mining point of  
view, from the very extensive and reliable information I have  
received from the Mining Journal for the last 30 years I often won-  
der how it is that, according to the amount of mineral reported  
by the different agents as coming from the different points  
of production, many mines do not do better for the stockholders.  
The price of both tin and copper is very low, but we must also  
take account that not only are wages extremely low, but also  
the cost of mining materials. More particularly I have noticed  
that the Welsh mines when they are getting from 1 to 5, 6 and  
7 tons of lead per fathom. For instance, Tankerville returns have  
been back from 150 tons a month. Roman Gravel returns are  
falling, and very soon will, it is feared, do so seriously. I notice  
that the charge of some four or five large mines. How often  
does he go underground in each mine? I am told scarcely  
once a month. Then, from whom do his weekly reports of the  
mining work and appearances come, and from whom does he  
report to the stockholders? How is it that at the bottom  
of the shaft at Tankerville he has such a long cross-cut to  
the bottom, if I understand right, his shaft ought to be in the lode  
itself. How has he sunk on the wrong part. Would it not be more  
advantageous to the stockholders of each of these mines to have a  
competent manager, and thereby enable each one to go underground  
at least twice a week instead of once a month? As it  
is very much of the opinion of your correspondent ("Miner")  
that the agents of Tankerville, Roman Gravel, and  
the agents of Dolcoath and Tincroft Mines when they fall  
down become poor mines. A MINER.

### THE LEAD MINING INTERESTS.

The reports from Hultafall continue not only satisfactory  
but further to strengthen confidence in the future. The dis-  
tributed authorities who have lately reported upon the properties  
in the existence of immense stores of ores, requiring only  
machinery to render marketable. The erection of this  
works, with the construction of floors and the requisite paraphernalia,  
is done. Hence the products can scarcely be realised and  
available for dividends during the current year, yet we are greatly  
pleased if during the year 1878 this company does not "cap" the  
lead-producing companies recognised on the London  
market in respect to bulk of yield. Leadhills is opening out well,  
the returns monthly augment, still the price of shares decline.  
Roman Gravel fall off in products and market value. The pioneer  
does not encourage hope in the future, yet the mine is bunched,  
and open to frequent changes. It would prove interesting to the  
reader to see in your valuable columns a diagram of the strata, show-  
ing the dip of the shale, and the lime rock particularly. Tanker-  
ville is good to purchase, and so is Ladywell; both, however, re-  
quire time to mature and carry out the works. West and East  
are well worthy the attention of the investing public; the  
works are spiritedly worked by Capt. Southey, and present annual  
returns of advancing yield, though prices of shares rule low.  
As usual; it is unquestionably the first lead  
mining, is well supported with funds, and the finance must  
be sound and healthy; but, as to yield, there is naught  
to beget, though in the opinion of many hope shines brightly  
in the future. Van Consoles and Aberdaunt are two memorable  
mines of hysterical inflation. The first received a lavish expendi-  
ture, while the latter exhibits inanition from want of sustenance.

It is to be regretted that such properties passed into the hands of  
parties who know not even the rudiments of mining—or, at least,  
do not practice them.

The highly interesting letter of Capt. Absalom Francis, in last  
week's Journal, respecting the Esgair-fraith, one of the Cambrian  
mines, cannot but prove satisfactory to all associated with the  
mining interests, for it proves that Cardiganshire lodes require only  
manly and practical handling to ensure success. It was earnest per-  
severance that achieved success at the Van, and no less so at Minera,  
Lisburne, Great Laxey, Roman Gravel, Tankerville, Dyliffe, Lead-  
hills, and Cwmystwith. It is also due to the management that the  
public look with lively hopes to the development of West Craven  
Moor, East Craven Moor, Pateley Bridge, West Pateley Bridge, Cwm  
Llanarch, and other progressive lead mines in Yorkshire and Car-  
narvonshire.

R. TREDINNICK,  
Consulting and Advising Mining Engineer.

Exchange, Coleman-street, Sept. 12.

### CAMBRIAN MINES.

SIR,—I last week, in company with Capt. Glanville, inspected  
these mines, and now have much pleasure in being able to report as  
follows:—The Esgair-fraith engine-shaft has been sunk between  
9 and 10 fms. under the 10, and before another month will be suf-  
ficiently deep for extending levels east and west on the course of the  
vein, which has improved in depth every fathom in sinking, and is  
now worth more than 50% per fathom. The deepest part where it  
has been seen contains a leader of lead nearly 6 in. wide, solid, and  
the copper portion very rich, and standing by the side of the lead.  
The 10, east of the engine-shaft, is in a rich course of copper ore;  
the lode here as well as in the engine-shaft being embedded in the  
finest gossan I ever beheld. In the winze sinking under the 10,  
many fathoms to the west of the engine-shaft, and now down more  
than 5 fathoms under the 10, the lode is very rich both for lead and  
copper ore, and worth over 40% per fathom. The lode coming  
towards this winze, and 50 fathoms to the west of it at the 20, is in  
a rich lode for lead; the width of the end is 4 ft. wide, but how  
wide the vein is at this point I cannot say, and it is right here to  
mention that I have in each instance valued that portion of the  
lode only which is being carried in the several bargains before  
mentioned, and I have no hesitation in saying you have a mine which  
when properly opened out is richer than any other in this county.

At Esgair-hir the lode in the new shaft south of adit level, and  
70 fms. west of the bargain last described, is in a good course of  
lead ore, but they have not as yet cut through it, consequently its  
real value is not yet ascertained, all of it as it is broken goes to the  
crushing-mill for dressing. This rich course of lead ore is entirely  
in new ground, and you may calculate on having a rich mine here  
of itself, apart from the Esgair-fraith and the old Esgair-hir, where  
the water is now drained to the 20, and is being opened out with  
economy and dispatch, and the machinery being put into the best  
order for carrying out the requisite trials to get under the magni-  
ficent courses of lead worked above for hundreds of fathoms long.  
Goginan, Sept. 10. HENRY BOUNDY.

### MORFA-DU MINE.

SIR,—The easy terms on which payments (extending over a con-  
siderable period) for subscription to this undertaking are offered  
must speak in its favour somewhat, but it is not generally known  
that this property, the capital of which is very small (only 6000*l.*  
having been paid up out of a nominal sum of 11,250*l.*, which is  
about all that is required), is capable of returning the entire capital  
yearly by the sale of the valuable bluestone (zinc) alone, a shaft of  
36 fathoms being sunk on a solid lode of ore, an engine erected, and  
the lode laid open. To sink the shaft is the only duty of this com-  
pany in so far as the bluestone is concerned. The royalty is moder-  
ate, and no promotion money is paid. A large sale at remunera-  
tive prices is ensured to this property's produce, and immediate re-  
turns can be made. If these shares are offered to the public no  
difficulty could exist as to their being rapidly taken up. A valu-  
able copper mine must also be opened up here, having all the Parys  
Mountain lodes traversing the set, especially those running under  
the great white rock. The extent of this area is very large, about  
245 acres, and with such resources, expectations, present wealth,  
and when due consideration is taken of the rich locality, second to  
none, and of the small amount of capital, no mine can compare with  
the Morfa-du enterprise at this moment, especially when it is con-  
sidered that an excellent stream of water is at hand, and a great  
demand for zinc ore exists. VIATOR.

### WHEEL GRENVILLE.

RESPECTED FRIEND,—We are told that if the Czar of Russia had  
known the defence the "turbaned Turks" were capable of making  
the present awful and bloody war would never have been entered  
upon. I venture to speculate that if the managers of Wheel Gre-  
nville Mine had known what the past 18 months would bring to light,  
and, further, if they could have foreseen the attacks which would  
have been made upon them, they would never have gone forth to  
strive against the former managers, nor would they have hastened  
with so much alacrity and anxiety to instal themselves in their  
present somewhat unsatisfactory position. Week after week seeth  
this luckless management assailed most grievously in front, flank,  
and rear (as the sons of Moloch describe it), and often by destruc-  
tive weapons and projectiles furnished by themselves, in the shape  
of unredeemed promises and sanguine expectations not yet realised,  
thereby making the attack the more painful to the assailed, and  
showing the ready wit and ingenious arguments of the assailants.  
I am both by nature and creed mercifully and charitably disposed  
towards all men, not given to unseemly rejoicings over the mis-  
fortunes of my fellow creatures, but I am fain to acknowledge that  
I am moved to rejoice somewhat at the discomfiture of the Wheel  
Grenville Mine managers when I remember how sorely they smote  
their predecessors, whose discharge they laboured hard and un-  
ceasingly to obtain and did in the end succeed in; casting forth  
without one word of thanks or consolation honest and worthy men  
who it appeared had been both efficient and diligent in their duty  
to their masters. Nor can it be denied that the present overseers  
did fill the shareholders' minds with the belief that they, the said  
rulers, possessed an abundance of ability for the important places  
they sought to occupy, and that they would with all diligence and  
economy apply themselves to quickly putting the affairs of the com-  
pany in a more desirable condition than could ever be hoped for  
under the old managers' oversight and control. Nor must we forget  
when one "F. L. A. T. Rodda" writing in thy paper, smiting the  
new managers hip and thigh with his powerful denunciations and  
condemnation, how a certain person accused him of being a per-  
verter of the truth, and suggested motives of malice and self-interest.  
Time hath shown, however, that the person's rebukes were un-  
deserved, and that Rodda was truthful and of integrity, and much  
to be commended for the correctness of his views.

But, friend, there is a time for warfare and a time for peace, and  
my chief object in now addressing thee is to ask if thou dost not  
think that the time hath arrived to cease further reproof towards  
this unfortunate management. I perceive, friend, that thou art a  
worthy and right-thinking man, ever desirous to open thy columns  
to the free discoursing of either side of a question or matter, and,  
doubtless, thou art moved to feel as I do, and as every lover of just  
retribution must feel, that whatsoever censure is meted out to the  
present Wheel Grenville Mine management it is not undeserved,  
inasmuch as they showed no bowels of Christian compassion for  
those who came before them, nor have they fulfilled the promises  
which they made as it were with the trumpet of boasting and the  
clarion of conceit. But I will ask thee, friend Editor, if this humili-  
ating posture they now stand forth in is not a punishment which  
sufficeth without further chastening? I am informed that a some-  
what large proportion of the old shareholders have long since re-  
tired from the company, sorely sick at heart with the result of the  
change they were persuaded to consent to, and it is further assured  
to me that the chief shareholders at the present time are the man-  
agers themselves and their friends, who are men of substantial  
means, and can afford to indulge in the hazardous and expensive  
pastime of mine management. If they have elected to do this, why

should their pursuit be further interfered with? Neither thou nor  
I, friend, have a desire to join in their work, and I doubt not the  
general public will show the like reluctance and discretion. There-  
fore would I cease to visit them with reproof and judgment in the  
future, but leave them to their own inclinations, bidding them,  
however, take heed of further vain boasting of themselves, and to  
cease in their disparagement of the worthy men whom they have  
succeeded. Farewell. Thy friend— THOMAS TICKLAR.  
Birchin-lane, 11th, 9th mo.

### BEDFORD UNITED MINES—LIMITED LIABILITY.

SIR,—During the last ten years of my residence here I have in-  
vested very considerably in mines—very heavily in Bedford United.  
The stake I hold in this mine has induced me to pay great atten-  
tion to its progress. I endured the first five years of call making  
by resolutely facing the difficulties of getting through the hard and  
unprofitable ground, and have promptly paid all demands made  
upon me in the last five years, being encouraged to do so on account  
of improvements that have taken place, amounting I consider to  
great success. Exercising implicit confidence in the statements  
made by Capt. Phillips, I would remark that the estimated value  
of the reserves of the mine, amounting to 20,000*l.* upwards, as given  
by me in the Journal a fortnight since, were founded accordingly,  
and which I understand has recently been confirmed by very high  
authority—proof of which can be made by a practical inspection of  
the mine any day. I understood until recently that the late in-  
crease of staff was by mutual agreement, and was for the assistance  
of Capt. Phillips, and looked to see an increase of returns, presum-  
ing that increased agency meant more extensive samplings, and  
when about six months since the sampling was made 50 tons more  
than usual, and of very valuable ore too, my spirits were naturally  
exuberant. But how fickle are our joys—so soon to be disappointed—  
and I am led to ask the question why the ore is kept from market  
and calls made instead? I have no doubt your valuable Journal is  
constantly read by most, if not all, of the adventurers of this mine,  
and as it is always open for fair and legitimate discussion of mining  
matters, I wish it to be the medium of interchange of thought and  
advice respecting the best mode to be adopted for other's welfare.  
We cannot be communicating often by circular, neither is it con-  
venient to attend the meetings in London in large numbers, hence  
the control is in the hands of a few only, and oftentimes solely in  
the hands of the secretary.

The question I want to ask is whether, now that "limited li-  
ability" is confirmed we are bound to accept it? I have no doubt  
there are those similarly interested as myself who are asking them-  
selves the question—Must we pay 12,000*l.* to get the 20,000*l.* worth  
of ore in the mine? I feel most emphatically No. Then if I do not  
care to pay the 1*l.* per share demanded, or cannot pay it, must I re-  
linquish, and so lose all I have contributed to bring the mine into  
its present position? I ought not to. Having consulted the most  
practical advice, and from mature calculation, I am convinced that  
the mine can be so managed as to pay us back most of our outlay  
within a very short space of time. If means to do this are not re-  
sorted to, cannot we claim our respective share of the value of the  
mine on being compelled to relinquish? I would suggest the mine  
being offered as a going concern, to be tendered for, whereby prob-  
ably a large sum would be obtained to divide among the adven-  
turers, or could not the number of shares be increased and offered  
to those of the proprietors as are most eager for further expenditure  
before making returns at a given price per share. First increase to  
4000 or 6000 shares at 1*l.* per share, the whole of this amount to be  
called up before any division of profits is made. An arrangement  
of this kind would give security to those shareholders who are not  
able to continue paying calls, and save them the necessity of relin-  
quishment. I should like to know the feeling of my friends on  
these matters, and cannot divest my mind of a great deal of sus-  
picion respecting the object of recent transactions relating to this  
mine.—Tavistock, Sept. 13. JOSIAH WEDGWOOD.

### TRELEIGH WOOD MINE.

SIR,—From the letter of "Ex-Shareholder" in last week's Journal  
I find Mr. Horswell and Capt. Goldworthy have been to the mine,  
traking out cost sheet, &c., so that we may assume they have suc-  
ceeded the late manager, but I understood Capt. Goldworthy was  
there before, or it may be they are brothers. I hope they may have  
a good mine there, and find no difficulty in turning the improve-  
ment to satisfactory results to the shareholders. By calling on the  
late manager to attend the next meeting for him to give all details,  
as "Ex-Shareholder" suggests, would satisfy all concerned in the  
matter. "Constant Reader," although he does not believe in rum-  
ours, evidently knows something strange, or he would not allude to  
"salted samples." I enquired of a miner what was the good or  
meaning of "salted samples," when he told me that it was likely to  
be prilled samples, and is generally practised by tributers, who  
by so doing would get their earnings increased, but he says it is  
seldom practised by tributers themselves now, but by someone con-  
cerned. I thought it was a ridiculous thing, but I am no miner,  
and cannot vouch for the above or the meaning of salted samples  
being correct. I will enquire again. A CORNISHMAN.

### THE MINES OF LLANRWST DISTRICT.

SIR,—Your Chester correspondent seems anxious to know whether  
there was ever a good mine in this district, and I thought someone  
would have answered him in the Journal of last Saturday. Although  
I have taken up my pen to make a reply to his query, yet I do  
not presume that it will be satisfactory to him, as I do not know  
what is his definition of good. You know, Sir, what one man calls  
good another may call something between good and bad, and it is  
well known also that under certain circumstances a thing may be  
bad, whilst under other circumstances the same thing may be good.  
Now, I think that this argument applies to the mines in the Llan-  
rwst district. A great revolution has taken place in the mode of  
working them, and, of course that must involve capital, which  
your correspondent should take into consideration. I think it  
would be unkind and even unjust to reflect on the wisdom of those  
who have had the management of these mines in former times, as  
it must evident to anyone who has been residing in the place for any  
length of time, and has examined them carefully, that they did  
just as much as any others could do under the same disadvantages.  
In the first place, they had no capital, and hence their explorations  
had to be limited to that which would make immediate returns.  
And, secondly, they had to reduce the ores by hand, or some little  
machine called a crusher—as good as had been known to them—far  
more suitable for a malt mill than for what it was used, and then  
this stuff must be all jigged with a hand-sieve, a slow and expen-  
sive process, as everyone knows that has had anything to do with  
manipulating ores. If a mine paid for working under such circum-  
stances as these no doubt your correspondent will come to the con-  
clusion that that was "a good mine." That such has been the case  
with most of the mines in this district is acknowledged by all that  
know their history. In addition to this we have presumptive evi-  
dence bearing on the same point—the immense quantity of work  
done with little or no capital. Thousands of fathoms of adit levels  
are driven into the mountains, and tens of thousands of fathoms  
of ground stopped away, and I ask in the face of this can any man  
believe that they went on for centuries driving levels, sinking  
winzes, stopping backs, &c., had they not found the operation pay?  
It would be contrary to common sense and reason to assume such  
a position. Where could working miners and a few tradesmen find  
the money? for such were chiefly the adventurers in former times.  
I think I have clearly shown that there has been more than one  
"good" mine here, but as there are different degrees of goodness, I  
will be satisfied, for the sake of argument, to take my position low  
down in the scale, so let me have a chance to rise. It is an old  
maxim "circumstances alter cases." Well, then, the favourable  
change in the external circumstances of the mines must raise them  
from "good" to "better," and "very good," according to the first  
position they take in the scale of goodness.

No doubt that "Inquirer" will want statistics in order to be sat-  
isfied. From the manner in which mining was formerly conducted  
here it is a difficult matter to get at such things, as they are re-



recorded only in the books of the estates, which, of course, are held too sacred for the profane eye to gaze into, therefore we must be satisfied with such evidences as I have adduced, which I think is quite conclusive. I am thoroughly convinced that the future prosperity of these mines will depend almost entirely on the effectiveness of the machinery. To attempt the old system of dressing with the present high price of labour is the height of folly. I am convinced also that with such machinery, let economy be exercised in putting it up, there is no better field of speculation open to the public.

*Valley of Conway Lead Mines, Llancrist.* JAMES ROBERTS.

#### TYN-Y-FRON MINE.

SIR.—The men during the last few days have been engaged in clearing and securing the adit level, east of cross cut, nearly all of which has passed through ground that has been very productive for blende and lead ores. We expect to get into the forebreast so that I may be able to dial the adit throughout by about the 15th inst., and when this is done I shall be able to put the men to press on eastward in whole ground, and where every fathom that we drive will add materially to our present height gained, which is now nearly 40 fms., and will be over 100 fathoms before we reach the boundary, every foot of which for nearly 300 fms. long is entirely untried from adit to surface.

*Goginan, Sept. 11.*

#### NORTH DEVON MINING.

SIR.—I was glad to see a notice of the Parracombe Mine in last week's Journal. Travelling through North Devon a few weeks since I chanced to stop at Parracombe a little time to rest myself a bit, ere attempting the 5 miles of hilly road that separates this village from Lynton. I was informed that a mine was shortly to be started, and that were it not for some little difficulty with regard to obtaining the necessary grant from one of the landowners mining operations would have commenced in earnest. I heard a few days afterwards that this difficulty had been removed, and an extensive sett secured upon very reasonable terms. Parracombe is only about 4 miles from the rich silver-lead district of Combmartin, but nothing whatever, so far as I could learn, has been done in mining there until recently. Everyone whom I heard speaking of it seemed highly pleased at the idea of a mine springing up around them. I learned at the time that one of the lodes was discovered when digging for the foundation of a brewery. Some capital specimens of ore taken from the lode were shown me, and I am glad to see that the samples which were assayed proved so rich (15½ in 20 for lead, and 12½ oz. silver to the ton), the depth from which the ore was taken being but 10 ft. from surface. I take this opportunity of wishing the adventurers every success in their undertaking, and I shall be much mistaken, from what I heard and saw myself, if the mine at Parracombe does not turn out a prize.

*Birmingham, Sept. 12.*

#### Meetings of Public Companies.

##### EAST POOL MINING COMPANY.

A meeting of adventurers was held at the mine, on Saturday (Mr. R. B. Broad in the chair), the accounts for 12 weeks working, showing a profit of 286½. 16s. 2d., which, with the balance from last account, amounting to 91½. 7s. 6d., together 378½. 3s. 8d., were passed to the credit of profit and loss against the balance of labour cost paid, amounting to 3205½. 18s. 9d., leaving a balance against the adventurers of 2817½. 15s. 1d. The following report was read:—  
Sept. 5.—Great Lode: The engine shaft sinking below the 130 is down 2½ fms. The 130 is driven east from pump winze 13 fms.; we have driven about 2 fathoms more at this level to communicate with the winze sinking below the 130; this end is worth for tin 16½. per fathom. The 130 is driven east of engine-shaft 50 fathoms, and is worth for tin 14½. per fathom; at this point we are now driving south through the lode to see its entire width, having already passed through 7 fms. of lode worth on an average 12½. per cubic fathom. The winze sinking below the 130 is down 9½ fms., and will be communicated with the 130 in about six weeks from this time; this is worth for tin 16½. per fathom. We have three stopes working in the back of the 130, east of engine-shaft, worth for tin on an average 17½. per fathom each stope. The 130 cross-cut west is driven south 39 fms.; at this point we have reached the south lode, but for want of ventilation are unable to go further south until we have a communication with the 170. At the 170, east of engine-shaft, the cross-cut is driven south 12 fms., and has reached the engine lode, and we shall at once commence to rise in the back of this level to communicate with the stope above at the 130. The stope in the bottom of the 130, on the eastern ground, is worth for tin 12½. per fathom; we shall at once commence to sink in the bottom of this stope to communicate with the above mentioned rise.—Engine Lode: The 170 is driven west of engine shaft 37 fms., and is producing a little tin—nothing to value; we hope in about a month to cut the cross-course, so as to communicate with the 130 cross cut, and thus prove the south lode. The winze in the bottom of the 140 cross cut, south of the engine lode, is down 7½ fms., and has intersected the flat lode mentioned below; we are unable as yet to give its value.—Flat Lode: At the 155 on this lode we have two stopes working, which are worth for tin 12½. per cubic fathom each stope.—South Lode: The 130 is driven east of the cross-cut 40 fms., and is worth for tin 14½. per fathom. We have one stope in the back of this level, worth for tin 14½. per fathom. The 130 is driven west from the eastern cross course 32 fms., and is worth for tin 15½. per fathom. The 130 is driven east from long winze 41 fms., and is worth for tin and copper 15½. per fm. There are two stopes working in the bottom of this level, worth for tin and copper 15½. per fathom each stope. There are two stopes working in the bottom of the 130, worth on an average for tin and copper 10½. per fathom each stope. There is a winze sinking in the bottom of this level, which is down 3 fms., and is worth for tin and copper 10½. per fathom. There are ten tribute pitches in this mine, the tributes differing from 10s. to 13s. 4d. in 11.—JOHN MAYNARD (manager), CHARLES BISHOP, WILLIAM TIPPETT (agents).

The committee beg to inform the shareholders that the postponement of the meeting from the 3rd inst. to this day has enabled them to conform to the wishes of the Liverpool shareholders—to charge up all the paid labour cost of the mine, and which you will find particularised in the statement of accounts. The committee have also, in conjunction with the agents, made a material change in the operations of the mine, rendered necessary by the depressed value of tin and copper, the result of which they have no doubt will be favourable.

The CHAIRMAN reported that on Thursday last a special meeting was held on the mine, which was a most important one, and one fraught with advantageous circumstances as far as the adventurers were concerned. The object of that meeting was for settling the twelve weeks statement of accounts, and of taking into serious consideration the best means of effecting those economical measures which had been determined on for the closer and more profitable working of the mine. The large shareholders in Liverpool had been communicated with, and had agreed with the committee and managers in the desirability of adopting a new system, whereby the cost of the mine might be reduced to the lowest possible limits, the deficit at present existing cleared off, and the mine placed in such a condition that they might soon again be enabled to pay a dividend. (Hear, hear.) As the statement of accounts showed, the balance on the 12 weeks working amounted to 286½. 16s. 2d., which, added to 91½. 7s. 6d., the balance from the last account, made 378½. 3s. 8d. Deducting this from the sum of 3195½. 18s. 9d. not charged in, the total deficit was 2817½. 15s. 1d. The consideration which had weighed with the committee, backed up by the managers, was how to work the mine in the most economical way; and, with the essential aid of their excellent purser (Mr. Martin) every article in the shape of labour or material had been analysed, even to the stationery in the office. The conclusion that had been arrived at was that a very considerable saving might be effected at each account, which would not only enable the present deficit to be speedily paid off, but also enable them to re-commence paying dividends. If the saving came up to their expectations (and the agents would strive that it should do so), they would be hoped, even pay a better dividend—of 2s. per share. (Applause.) They stood in the position of possessing one of the best mines in the country; indeed, a very capable agent said to him a few days since that if they lived for 100 years they would not see its resources thoroughly exhausted. It was certainly unfortunate, whilst they were carrying on so heavy a concern, that they should only receive 286½. 16s. 2d. profit on the 12 weeks working, whilst the lord of the soil, for the same period, carried off no less than 418½. 10s. (Hear, hear.) In answer to Mr. Harris he (the Chairman) stated that they paid the lord 1-15th dues for all minerals excepting tin, and for this they paid 1 18th.

Mr. HARRIS remarked that inasmuch as some of the adventurers were dependent for their living upon the mine he would suggest the desirability of at once asking for a reduction of the dues during the existence of the present depression. (Applause.)—Mr. W. H. RULE seconded this, and it was carried unanimously.

The CHAIRMAN remarking that Mr. Bisset, the lord, had hitherto dealt very liberally with them, and that he had no doubt but he would do so on the present occasion.

On the motion of the CHAIRMAN, seconded by Mr. HARRIS, the statement of accounts and report were adopted.

Mr. W. H. RULE remarked that as they were about to apply to the lord for a reduction of the dues he thought the smelters ought to try and get them a little better price for the tin ore produced. (Hear, hear.) He had lately seen a parcel of tin that had been sold for 37½. per ton at 60s. standard, the produce of which was 13½. but the returning charges of the smelters, which amounted to 14½. reduced the produce to 12½. net, or equal to giving 5s. per ton above the standard is of the day. That parcel of tin would realise 37½., but supposing they smelted their own tin, and it made a produce of 13½., the parcel would produce in metal 6 fms. 15 cwt., which, at for the sake of argument (say) 70½. per ton would realise 473½. 10s. The smelters allowed 3 lbs. in every cwt. of ore for waste, so that on a parcel of 10 tons the amount allowed for waste would be 5 cwt. 12 lbs.,

yielding at 13½. produce 3 cwt. 2 qrs., which at 70½. per ton would realise 12½. 6s., so that the amount actually obtained was 484½. 16s. For the sake of argument he would allow 5 per cent. for brokerage, discount, and railway carriage, so that the amount stated would be reduced by 24½. 5s., showing a margin on a 10-ton parcel of profit of 90½. 10s., out of which had simply to be paid the cost of smelting. Considering the present depression, and the fact that the smelters only paid them a 60s. standard, and that they were making something like 70½. per ton, less 5 per cent. discount and railway charges, he could not help saying that the margin between what they were giving the miner, and the price they were making themselves, was too wide of the mark. (Applause.) They were making a profit out of a 10-ton parcel of 90½. 10s., from which they had simply to deduct the cost of smelting. Under these circumstances he thought it was high time the smelters should consider the position in which the Cornish miners were placed, and should give them something like the standard which they ought to. (Applause.) He suggested that a committee should be appointed in reference to the matter.

During some discussion which ensued Mr. MARTIN, the purser, pointed out that they must not make their calculations upon a false basis. He would remind them that the smelters, in addition to paying the carriage of the tin, allowing a discount of 2½. per cent., and paying the broker a commission on the sale, had also to run the risk of bad debts, so that 5 or 6 per cent. at the least had to be deducted from the smelters' profits.—Mr. HARRIS contended that the smelters had combined together against giving a better price for tin, and said the only way in which adventurers could benefit was by smelting their own tin.—Mr. W. H. RULE said he did not see that there would be the slightest difficulty in doing so, at a comparatively slight cost too, for he believed that a smelting works could be erected on the mine for 2500.

Capt. ABRAHAM JAMES believed that the respectable smelting houses had done as much to keep up the price of tin as under the circumstances could possibly be expected of them. While, however, the larger houses had been doing their utmost to benefit the suffering mines of that county the smaller ones had been doing all they could to undersell them. This should be borne in mind, and in cases where such a thing was known the adventurers of mines should protect themselves by refusing to sell any tin to such parties. With the present price of tin it was impossible for the mines in that county to flourish, and he suggested, in order to improve their position, that the mines adventurers generally should combine and agree not to sell a single ton of tin for less than 50½. He believed the effect of such a combination would be that they would get this amount for an article which they now sold for 37½. per ton.

Mr. W. H. RULE remarked that at the present time some of the smelters were buying Australian tin and selling it for English. He admitted that some of the respectable houses had done their best for the mines of that county, and said he endorsed every word that had fallen from Capt. James. After some further discussion the matter dropped.

The manager (Capt. Maynard) and the agent (Capt. Bishop) having been accorded the thanks of their valuable supporters in behalf of the meeting, the former, in response, referring to what Capt. James had said, remarked that he found from experience that they frequently get a better price for tin from the small smelters than they did from the large ones.

The CHAIRMAN here took occasion to remark that in future, as far as was possible, every penny of the accounts would be closed up to the day of meeting.

A vote of thanks to the Chairman followed, and Mr. BROAD, in response, expressed a hope that the new era commenced that day would be a better augury for the success of East Pool. (Applause.)—*Western Daily Mercury.*

##### WEST WHEAL SETON MINING COMPANY.

The four-monthly meeting of shareholders was held at the account-house, on Sept. 7.—Mr. PRYOR, the purser, in the chair.

The usual preliminaries having been disposed of, the accounts were presented, showing a profit on the four months working of 49½. 0s. 3½., increasing the credit balance to 443½. 8s. 7d.

The CHAIRMAN congratulated the meeting upon the position of the accounts, which, he said, must be regarded as satisfactory when they took into consideration the low price of minerals with which they had to contend during the last four months. The price of copper alone, as compared with that obtained in the preceding four months, had made a difference to their credits of something like 500½., while on the sales of tin there was a reduction of about 200½., making a difference of 300½. in their credits in the short space of four months. Their debits included 119½. 12s. 6d. for bankers' charges, and 126½. 11s. 6d. for rates; both these were exceptional charges, and did not come into every account, the rates being only charged once a year, and the bankers' charges twice a year. If they had had anything like the same price for their minerals as they had at the last meeting they would now have shown a credit balance of 1200½. to 1300½. instead of only a third of the amount. The bank balance was on the table, and had very great pleasure in presenting it, because it would show that they had something like 1800½. at the bank instead of an overdraft, as some mines unfortunately had.

Capt. JOSHUA THOMAS reported upon the various points of operations. The lode, which is principally standing to the south of the level, is improving in appearance, and produces some good copper and tin: it is now worth 3½. per fathom, and is likely to increase in value on being driven further west. The best chances of future success are in the new ground in the western part of the mine. He was sorry to have to report that the prices of both tin and copper are lower than at any former period in the history of the mine. The drop in these metals since the last account has taken off upwards of 700½. from their credits that day. He regretted there had been such a reduction in the price of minerals. He had been looking over the prices of tin and copper when he came to the mine nearly 2½. years ago, and he found that if those prices had been maintained up to the present time they would now have had a profit of about 2500½. Tin during that time had decreased 15½. a ton and copper 30s. a ton.

Mr. W. H. RULE suggested that as the wages of the girls had been reduced to 8d. per day, and those of the engine-men from 3s. to 2s. 6d. per month, there ought also to be a reduction in the agents' salaries.

The CHAIRMAN said he was quite sure that every official in the company had the interest of the mine as much at heart as Mr. Rule or any other shareholder. They had talked the matter over that morning, and they were unanimous in voluntarily offering to reduce their salaries a guinea a month all round. They did this without any hesitation, and in the hope that when better times came round the adventurers would see fit to re-instate them in their former positions. At any rate they had now reduced their salaries with much pleasure, and had thus shown their desire to meet the shareholders in every way.

Mr. HARRY thought the shareholders were greatly indebted to the purser and agents for having made such an offer. He did not think their salaries were at all too high.—Mr. RULE remarked that in these depressed times they must do everything in their power to reduce their working expenses, and the first thing they ought to look to is their agency charges. Their purser was receiving at the present time seven guineas a month, the engineer three guineas, the clerk seven guineas, the manager five guineas, the day agent ten guineas, and the two night and day agents nine guineas each. He believed they ought to manage this mine with only two agents, and that the salaries of the others should be reduced. The engineer should be reduced to two guineas per month, the purser to four guineas, and the two underground agents to 3½. 8s. a month each. If this were done the agency charges would be reduced to 33½. a month, and a saving would be effected of 24½. a year. If this was a rich mine he would not move at all in the matter, and should like to see agents well paid for their work; but as they have not a rich mine they ought to practice the utmost possible economy. At the same time he did not wish to act contrary to the wishes of the adventurers at large, and would be glad to hear what they had to say on the subject.

Mr. CLYMA said he thought it would be very unfair indeed to dismiss an agent at a moment's notice, and thought it better that the matter should stand over for consideration at the next meeting.

This view was generally supported by the meeting, and ultimately, after a long discussion, Mr. RULE yielded to the prevailing opinion, and the subject was adjourned, it being arranged that a meeting should be held at the end of three instead of four months.

A resolution was then passed accepting the offered reduction in their salaries of the purser and agents, and thanking them for their liberality.

KILLIBRETH.—At the meeting on Sept. 7 (Mr. J. Tregoning in the chair) the accounts showed a debit balance of 3197½. 9s. 10½. A call of 2s. 6d. per share was made. The agents reported on the various points of operation, and in conclusion said that on the whole they were pleased to say that the prospects of the mine have very much improved since the last meeting, and with only a small advance in the standard for tin and copper they should be able to meet the cost, whilst a moderate price for minerals would enable them to make a fair return to the shareholders. The outlay for the new steam stamps may now be considered as complete, and a great reduction in the working costs follow.

WHEAL AGAR.—At the general meeting of shareholders held yesterday (Mr. John Weston in the chair), the accounts, showing a balance against the adventurers of 5419½. 1s., were passed, and allowed; to meet this balance a call of 10s. per share was made, and it was unanimously resolved that the balance due to the bankers should be paid out of the proceeds of the call in priority to any other creditors. It was also determined not to borrow any money of a banker in future on account of this company. The report states that the engine-shaft has been sunk 10 fms. below the 195 in a rich lode, which has yielded tin of an average produce of about 12½. lb. of tin to the ton of stuff. There has been sunk and stope 50 fms. of ground, which has produced over 2000 tons of stuff, or about 104 tons of tin, being over 2 tons of tin per fathom, which, at the low price prevailing since the last meeting, is about equal to 75½. per fathom. Taking the length of the shaft 14 ft. by Mr. J. J., the lode in the shaft has yielded over 1500½. per fathom, and is still as rich as ever.

[For remainder of Meetings see to-day's Journal.]

STONE QUARRYING MACHINE.—Mr. JOHN B. MCRAE, Mount Holly, Arkansas, U.S., has patented an invention to work some large quarries of soft white stone, and which produce a very useful building material, by a machine which is designed to cut the stone in the quarry directly into blocks of the required size in a quicker and more economical manner than with the present slow and tedious methods of quarrying them, and the invention consists of a car with a steam-engine or other motor driving a vertical and adjustable front saw, a horizontal and adjustable saw back of the same, and a third vertical rear saw, at right angles to the front saw, to divide the long pieces of stone cut from the bed into blocks of the required size. The rear saw is made vertically adjustable by a suitable lever and guide arrangement. A car of suitable size is propelled to the place of work on a track laid in the quarry. The car is provided with a

steam-engine or other motor, by which the cutting saws are raised and the car moved forward while the machine is in operation. At the front part of the car is placed a vertical saw of suitable meter that cuts down into the bed of stone.

#### THE KIT HILL TUNNEL.

The present severe depression of mining enterprise in West Cornwall must largely enhance the importance of the energetic effort that are being made to develop the Kit Hill district in East Cornwall. We, therefore, learn with pleasure that the district in question is the scene of daily increasing activity, and, we are glad to add, of daily increasing success. Instead of mines being closed, the number of hands employed being diminished, we hear that tracts have recently been let for the erection of four new engines around Kit Hill, that new shafts are being sunk and old ones opened, that adit levels and cross-cuts are being vigorously driven, and that additional miners are being engaged at good wages, and it has been determined to commence an enterprise which may, out of exaggeration, be described as the most important mining from a commercial point of view, this enterprise cannot fail to attract public attention, and, therefore, we doubt not the following details will be of interest to our readers.

A glance at the map prepared by the officers of the Government Geological Survey shows that the metallic lodes are divided into a series of distinct groups, beginning at the Lands' End and occurring at intervals along the axis of elevated ground extending from the Lands' End in the extreme west to Kit Hill in the extreme east. It is, moreover, observable that each of these groups of lodes coincides with an outcrop of granite, which has pierced through its envelope of killas or clay-late, and may be regarded as a vertebra of the backbone, and these lode-seamed vertebrae thus constitute the prospective mining districts. An additional fact that cannot fail to impress even a cursory observer of the map is that the little lines representing the lodes run for the most part in a direction not far removed from east and west. There are, it is true, a few lodes having a north and south direction, and others (scattered) a somewhat diagonal bearing, but it is obvious that the great majority of all the gold lines lie parallel to and upon the north and south slopes of the main axis of elevated land.

Accordingly it would not be incorrect to describe each mining district of Cornwall as consisting essentially of a granite hill more or less enveloped in killas, and reft by a series of parallel cracks running through both rocks, these cracks being filled with a mixture of stony matter and metallic ores. Viewing also the considerable height of these hills above the surrounding valleys it would be this description follow as an inference of the plainest common sense that the rational method of mining is to drive an adit or tunnel through the base of each hill in a direction at right angles with east and west lodes. The several districts would thus be effectively drained to a great depth from surface, and every existing east-west lode in each district would infallibly be discovered. Driven from the tunnel on the lodes thus cut would in turn intersect the caunter and north and south lodes, and would reveal the position of the various points of junction and other places where rich veins of ore are to be found. These deposits could not only be followed upwards in dry ground, but it would be a simple matter to follow shafts and drive galleries on the lodes below the level of the tunnel, keeping them drained by means of apparatus set in motion by action of the water discharged from the tunnel itself, the remainder of the discharge being utilised for winding and hauling, and for mechanical preparation of the ores for sale.

This theoretical description of what mining ought to be is obvious a nature that we should hardly expect to find any method of working adopted in practice, and yet we believe we are correct in saying that hitherto it has never been adopted either in England or elsewhere. The reasons for this astounding fact, however, not far to seek. In the first place, the theory requires a mining district shall consist of a single hill, and that the slope of this hill on north and south shall be sufficiently steep to shorten the section of the hill, and consequently the length of the tunnel, and the limits of the resources ordinarily available for mining purposes. Secondly, it is clear that the proprietorship of the entire mine of the district, or at least of the minerals underlying a broad tract extending from valley to valley over the hill in the direction of the tunnel, must be in the hands of those who construct the tunnel. Now, it so happens that these conditions are very rarely found in practice. The "granite hill," above spoken of as constituting an essential feature of each Cornish mining district, must not be understood as necessarily a single isolated peak or eminence; it is merely a considerable tract of country, having the general character of an upheaved eminence with respect to the surrounding country, but being in reality a group of hills, with intervening spurs, valleys, and downs. And as regards the proprietorship of minerals, practice is to divide each district into comparatively small groups or sets, and to lease these to separate individuals or companies. Hence the unity of interest and purpose necessary for tunnelling through a mining district can seldom exist, and even if it did, the practical difficulties and the extent of the necessary means of disposal of the constructors. At the same time it must not be concluded that these practical obstacles have hitherto entirely prevented the carrying out of works based upon the principles herein indicated. In Cornwall there is the great adit constructed in the part of the last century to drain the Gwennap district, the productive in rich copper ores. This adit with its branches extends upwards of 35 miles in length, and drains about 30 miles of country, to depths varying from 30 to 90 fathoms. America there is the great Sutro Tunnel, now being driven into Rocky Mountains, with the view of intersecting the Comstock lode at a depth of more than 2000 ft. In Chili a similar tunnel is driven into the heart of the Andes to cut the various silver lodes, which have produced such riches at and near surface. In the Mountains the Saxons miners recently completed the Ernst adit, which is upwards of 12 miles in length, and drains the portion of one of the principal mining districts to depths varying up to more than 1200 ft. All these works, however, are but but both in their avowed purpose and their practical utility. None of them pierces through and proves the mineral contents of an entire district, and not one is as yet used for the purpose of working well as draining lodes.

Now, by a rare combination of circumstances the Kit Hill district unites in itself all the conditions required by our theory, and it is unique in its advantages and prospects. It is an isolated hill, singularly bold outline sweeping down to deeply excavated valleys on both the north and south sides. It is composed of granite, a killas envelope extending to within a short distance of its summit, and both granite and killas are abundantly fissured, not only by lodes, but also by elvan courses, or dykes of granitoid porphyry in a decomposed state. The granite, too, is of a schorlastic character, and intruded masses of greenstone and other igneous rocks are met with, while the very killas is at many points metalliferous wholly, or in parts, all these features being so many indications of adjacent metallic riches. The working of the lodes hitherto fully justified the correctness of this inference. Copper, tin, lead, arsenic, and wolfram all more or less associated with gold, silver, cobalt, nickel, bismuth, and antimony, have been produced in large quantities, and the workings are still being conducted with great success. In particular the southern valley is remarkable as being the only locality in the kingdom where silver ores have been largely wrought; and lately at Wheal Newnham in this valley, a magnificent lode of argentiferous stannite has been broken in 24 hours. Nor are the benefits of united proprietorship wanting. From the northern to the southern valley a continuous line of sets extends without break in a direction which having regard to the desirability of working through congenial country, of intersecting cross lodes and caunters, as well as the east and west veins, is situated more favourably than any other. These



There have been few facts of interest to record in connection with the French iron trade. It may be observed that the Ardennes, which in the first half of 1876 produced 1700 tons of casting pig, effected no corresponding production in the corresponding period of 1875. The Escant, which produced 10,200 tons in the first half of 1875, also made default this year. This industry appears to concentrate itself in Champagne and Savoy; these are, at any rate, the only districts in which the production is making progress. The total production of casting pig in France in the first half of this year only amounted to 131,000 tons, as compared with 168,000 tons in the corresponding period of 1876, showing a decrease of about 20 per cent. this year. Refining pig has, on the contrary, regained a part of the ground which it had lost. As regards iron the difference is much less.



marked. Plates have gained; rails have remained nearly stationary. As regards steel, rails represent four-fifths of the production, and the make of rails has been about 9000 tons less this year. The general production of steel would appear, however, to have slightly increased in France this year.

The French coal trade exhibits the same indifference and the same quietness. This is due to the same absence of affairs as has been noticed for some time past. Sales are limited to the current requirements of various industries, and little is said at present about winter contracts. It is especially to the basins of the Pas-de-Calais and the Nord that these remarks apply. The little business offering itself in these two last-mentioned districts is the object of English and Belgian competition, and some deliveries have been made at almost ludicrous prices. There is little fresh to report with respect to the Belgian coal trade. M. Laguesse, Engineer-in-Chief of Mines in the province of Hainaut, has reported upon the progress of mining industry in that province in 1876. The total production of the province in 1876 was 10,487,000 tons, or 481,000 tons less than in 1875. The price obtained for the coal raised last year in the province was less remunerative than in 1875.

#### FOREIGN MINES.

**ST. JOHN DEL REY.**—The directors have received the following telegram from Morro Velho, dated Bahia, Sept. 11:—Produce for month of August, 43,500 oits. = 16,820 $\frac{1}{2}$ ; yield, 8 oits. per ton.

**DON PEDRO NORTH DEL REY.**—Report for July: Produce from 1879 tons, dry weight, 5115 oits. = 2173.175. 6d.; cost, including all general expenses, also cost of labour and materials, amounting to 367. 3d. for each ton of permanent pumping machinery. 2300 $\frac{1}{2}$ . 1s. 10d. (Telegram from Rio, dated Sept. 11, referring to a later date than the above report, advised 5200 oits. for the month of August.)

**SIERRA BUTTES (Gold).**—Result of the working at the Sierra Buttes and Plumas Eureka Mines for August:—Sierra Buttes Mine: Receipts, \$ 6,442; total California expenses, including cost of mining and milling, \$21,136;—Plumas Eureka Mine: Receipts (including sulphurets), \$38,559; total California expenses, including cost of mining and milling, \$19,615. A ledge, 4 ft. wide, of 86 ore, has been discovered in the seventh level of the Sierra Buttes Mine.

**LONDON AND CALIFORNIA.**—The August clean-up at the Original Amador Mine amounts to \$10,000. Owing to the failure of the water supply the mill has to be stopped temporarily. A favourable report has been received from Mr. W. Johns, who states that it now contains two years' supply of ore.

**RICHMOND CONSOLIDATED.**—Telegram from the mine at Eureka, Nevada: Hall, London—Five days' run, two furnaces, \$27,000. from 500 tons of ore. Start third furnace as soon as fourth level is sufficiently open. Looking very well.

**R. Rickard, Aug. 20:** Since my last the 400 main drift has been drifted 80 ft. on the quartzite in a southerly direction; not much ore was found for the first 60 ft. drifted, but the last 20 ft. has opened out a small vein of very good ore; at present it is 6 ft. wide, and of very high grade. The rise in back of this level is up 220 ft. on an incline; for the last 20 ft. there has been very little ore, but in the present back of rise the ore is widening, and is looking very well. There is a second rise in the back of the 400, which is up 80 ft. all the way in good ore. On the 5th of next month we shall start two furnaces on the ore opened in the fourth level.

**JAVALL.**—The report of Capt. Sohns (who has arrived in England) for the month ending Aug. 5 states that the mill worked with 30 stamps 21 $\frac{1}{2}$  days, crushing 1800 tons of quartz, and yielding 421 $\frac{1}{2}$  ozs. of gold, valued at \$704. The expenditure (including 122 $\frac{1}{2}$  on capital account) had been \$977. The tailing mill requiring adjustment had been only partially employed, but will in future be regularly at work, and yield, Capt. Sohns anticipates, a very satisfactory return on the outlay.

**CHONTALES.**—Aug. 6: The total quantity of ore treated in the past month is 850 tons; yield of gold, 190 ozs.; average, 4 $\frac{1}{2}$  dwts. per ton. Value of the gold obtained, \$241; total cost for July, 338 $\frac{1}{2}$  12s.; balance in favour, 157. 8s.—Pavon Mine: This mine is the best situated for water-power, and there is a large main here for about 40 ft. wide, which has been cut through, and the lode wrought on by former workers. This main is very shallow, and it runs in a good direction. Under the main there is a strong looking and hard lode, about 12 ft. wide, and might make something good in depth; but as depth has never been proved in this locality, I would like first to open upon the lode before recommending the company to go to any expense in erecting machinery here.—San Benito: We began to work in this mine last month, and drove 5 varas, until the flood came and washed down the tramroad. The lode is poor at present, but I think will soon improve. It is now good for progress, and I shall resume the driving of this lode as soon as possible.

**San Sebastian:** We have driven here 7 varas, risen 7 varas, and stopped 164 cubic varas. The total yield of ore was 550 tons, which produced 123 $\frac{1}{2}$  ozs. of gold, or an average of 4 $\frac{1}{2}$  dwts. per ton. The quartz from the stopes here has recently improved, and I hope will continue, as we have used a lot of timber in repairing level, road, &c., and we are now in a better position for opening on the lode than last month, when I had many hindrances, and, consequently, made slow progress. During the past month I have also had about 300 tons of quartz put through the stonebreakers, and afterwards treated in the mill. The result was 67 ozs. of gold, or an average of 4 $\frac{1}{2}$  dwts. per ton.—Machinery: This department I think to rectify at convenience in the best way possible. I shall try the pneumatic stamps to see myself what is really amiss with it as soon as I can get the water in for the coffer, the least that the water comes through now being filled for a long distance by a landslip. I hope also to get one of the Wheeler pans to work next week, and will give everything a fair trial when the company's money has been spent.

**I. X. L. (Gold and Silver).**—Lewis Chalmers, Aug. 13: I enclose the foreman's report for last month. The foreman reports, August 11, that the engine shaft is now down 105 ft. from 200 station; 9 ft. sunk this week. The said shaft is in hard blasting rock, the water is getting heavy as we go down, and is now making 700 gallons per hour; we are keeping the engine going steadily, and one man tending each shift. The north drift is now in 602 ft. from the cross-cut on the 2.0 level, is improving somewhat in face from our last report, and is in very promising ledge matter, and a regular well-defined ledge carrying considerable low-grade ore; 6 ft. driven this week. The wood road is progressing well considering the large amount of hard rock it has to go through; eight men working on said road at present. The boiler has been repaired, and is working well. Everything in and about the mine is running and working well.

**Lewis Chalmers, Aug. 18:** Shaft Contract: I cannot get a suitable offer. I am therefore working better by the day. The contract was for 100 ft. of shaft, and a little coming to them after paying their board, and orders that they had given me for a fit-out, that I paid them their contract for the few feet they completed.

**Aug. 20:** It was my intention to sink another 100 ft. without a tank station, but a great additional influx of water puts that out of the question. Foreman reports for the week ended Aug. 18 as follows:—The engine-shaft is now down 8 ft. below the 300—3 ft. sunk this week. We worked two days in the bottom, the water being too heavy to admit of any progress in sinking; on that account a tank station is started in the 300, and is well under weigh. This station will be completed by the end of next week. When completed, and the pump lowered down to it, we shall be able to make good progress in sinking the next 100 ft. of the said shaft. By the indications in the bottom of the said shaft it is near to a ledge, and is full of small streaks of ore, and water pouring through them. The north drift is now in 599 ft. from cross-cut, in the 200. The face in ledge matter is 4 ft. thick, carrying low grade ore—7 ft. driven this week.

**BLUE TENT.**—Thomas Price, Aug. 20: Mr. Courtenay and myself have been at the mine since the 14th, having in the meantime been along the whole line of the ditch, and spent several days in the examination of the various claims, shales, undergrowth, and outcrops. We are still washing vigorously at San John's, with every prospect at present that we shall have water until the end of the month, which is much better than we expected. We are very busy at work in the Blue Lead claim. Mr. Courtenay exploded the blast to day. The drifts were loaded with 20,000 lbs. (10 tons) of blasting powder, and I am glad to be able to inform you that it was a most perfect success. It raised the 100 ft. bank bodily into the air, to the height of 10 ft., dislocating and pulverising not less than 200,000 tons of auriferous gravel. Water will be playing upon this bank before the day is out, and, having place now to use water, we shall be at work cleaning up the South Zuba, when will, I think, be a good one. Results will be in your hands per cable before this reaches you, therefore I will not risk an estimate.

**COLORADO UNITED.**—Aug. 4: The shaft engine is now constantly at work, and, with the new drum, friction gear, and steel rope, is doing good work in pumping and drawing. We are about to lower the pumps to enable us to fix distern, &c., and resume the sinking of the engine-shaft to 52 ft. below the 7th level, and then drive the 5th level west. The 4th level west is being driven on a north branch of the main lode; we expect it will bring us on to the main lode, which we know to be south of the present end. The 5th drift west is in a disordered ground and hard for driving; it contains a little mineral. The 6th drift west has been considerably disordered, but is now getting more settled—a large stream of water issues from the end; the lode contains several branches of mineral, is large and easy for driving. The 7th drift west has been driven nearly 100 ft. since we resumed work, and opened some splendid stopping ground. Since we holed to No. 2 winze the lode has been of much less value, averaging only 1 $\frac{1}{2}$  ton per fathom, and the mineral has not been of such a high grade as before. The ground has favourably changed during the last 2 or 3 ft., and I think we shall soon get a substantial improvement. The 7th drift, east of engine-shaft, is now set to drive by four men, at \$9.50 per foot; the ground is fair for driving, the lode large, and contains mineral disseminated throughout. The silver ore shaft is now cleared and timbered to a depth of 30 ft. below the 4th level. A nugget the size of a line with this shaft from the 5th to the 6th level, and is already down 27 $\frac{1}{2}$  ft. below the 5th level. The stopes throughout the mine are yielding well, and the ore is rich. The Union Tunnel is without any material change; the ground is hard, but lately we have passed through a number of small cross-heads. The silver ore tunnel is letting out a great deal of water, and the ground is easier for driving. The ends west of this tunnel are being driven on lease, and are, together with the stopes in the back, yielding a profit.—Chelsea Beach Mines: The top level is being driven by two men, at \$12 per foot; this drift has opened out some good reserve ground, which will be available for prospecting, when required. At present the end shows a very open lode, with water channels, and is not sufficiently solid to yield much mineral. We shall probably see some decided improvement in this end again before long. The stopes in back of this level are looking very well. The 2nd level, which corresponds with the level of the Brown Tunnel, is at present suspended; the lode is large, but poor. A winze below this level is also suspended, pending the intersection of the lode by the silver ore tunnel, when the lode will be drained. The stopes working in back of this level are in good paying ground.—Dressing: Our works are doing good duty, and are enabling us to turn the fine dirt from some of the old shafts into profitable account.

**Aug. 14:** We have lowered the pump and drained the water to within 20 ft. of the bottom of shaft. We shall clean this out as quickly as possible, and get the shaft sunk the necessary depth for a pump and pit, to push forward the new 8th level. The 4th drift west is the same as last reported. The 5th drift west is improving; there is a good branch of mineral on the footwall, opening out as we advance to the end. The 6th drift west has also improved; there is about 4 in. of rich mineral in the bottom of this end, while in the breast and back there are only a few small branches. I think this end is very promising. In the 7th drift west the lode has improved since I last reported; it will now yield 1 ton of ore to the

fathom of good quality. The 7th level, east of engine-shaft, is without alteration since I last reported. Union Tunnel has just been driven through; lode 3 ft. wide, letting out a large quantity of water, and where out is of no value. Silver Ore Tunnel, Brown property, and dressing, &c., are progressing favourably.

**Aug. 28:** We have cleared up the bottom of the engine shaft, are filling distern, and will resume sinking next week. In the 7th drift west the main part of the mineral in the lode has not been taken down since I last reported. The ground is easier, and the end will produce 1 $\frac{1}{2}$  ton of 180 ozs. ore to the fathom; now being driven at \$8.75 a foot. The 6th drift level west is very wet, ground easy. There is a good lode in the bottom, breast, and back. In the 5th drift west the lode is very much disordered—ground hard and no mineral to value.—The 4th drift level is now gaining fast south, leaving the north branch for the main lode. The 7th drift, east of engine-shaft, is slightly improved, yielding good concentrating mineral. The Silver Ore shaft will next week be completed to bottom. In Silver Ore tunnel the ground, if anything, is a little harder than when I last reported. Union tunnel is now granite rock.—Brown Property: The top level—the Beach drift is turning out about 1 $\frac{1}{2}$  ton of mineral per fathom, but the yield is low. The stopes throughout are looking well. Dressing as usual.

**SAN PEDRO.**—W. Phillips, Aug. 1: In the 185 the cross-cut yielding through the manto, by two men, is without change since last report, still driving good stones of ore, but not in sufficient quantity to value; this cross-cut has been driven through the manto 12 metres. This month we have driven 8.98 metres—2.68 at \$20 per metre, and 6.30 at \$15 per metre. The end driving across the manto, south of east, by two men, at \$15 per metre; this end has been looking very promising during the last few days, and is yielding some splendid stones of rich yellow ore. Last Saturday we took out a stone more than 25 lbs. weight of 22 to 23 per cent. metal; this end is still producing stones of ore, but not in sufficient quantities to value, but it is looking very promising, composed of quartz, prismatic granite, and stones of ore, and it is my opinion that we shall meet with productive ground here shortly. This end has been driven during the month 5.30 metres, at \$15 per metre. The end driving north of west at \$12 per metre is much the same as when last reported, yielding stones of ore, but not enough to value; this end has been driven 1.80 metres during the month. In the 160 the winze sinking in the bottom of this level, by two men, has not progressed so rapidly as I hoped, as we have had to sink through a hard and troublesome floor, but now the ground is a little easier, and is producing stones of ore. We have sunk during the month 4.10 metres, at \$22 per metre; this winze is now down 4.50 metres. We shall put four men here to-morrow, so as to get through as soon as possible for ventilation. In the 135 the pitch in this level has been suspended on account of being poor. In the 88 and 47 the tribute pitches at these levels are producing small quantities of 25 per cent. ore, which leaves a small profit to the mine.

**Old Works:** The ore ground a few metres below the surface at the mouth of the mine we have to-day set on tribute to three men, as it will no longer pay to work on bonus account; they give us 20 per cent. free of charge, placed in Charnal. The ground in and around the old works is much crushed and broken, and we cannot get into the works without using a lot of timber, which I believe would be too expensive, and I believe that the only chance we have of cutting anything profitable and lasting in the bottom, and even if the ore should not be met with in large quantities in the 165 it must be met with in depth. While the manto remains compact and alive it is certain to give ore. No one can tell how thick the poor floor between the carbonates and sulphurets is, but from the experience of the 165 in the bottom of the manto, it has been the case during the past 12 ft. I am convinced that we are nearly, if not quite, through the poor floor. I have never known the rule to fail that a large bank of sulphurets is found under the carbonates, and I firmly believe that a large and paying bank of bronzes will be met with if we have perseverance and funds to sink for it. We have driven during the month 26 metres, at an average price of \$15.70.—Santa Helena Mine: Here we have some tributes taking out ore from the desmontes. Everything at surface and underground is working in a satisfactory manner.

**ARGENTINE.**—Captain Coward, July 27: All our underground work, with the exception of the 24th level, has been in the hands of the 44 North Plaque and the 20 cross-cut east, Capatzen section, are engaged in breaking ore in bottom of the 44 and in No. 2 canoa, above the back of the 44, both of which places are without change. The rise in back of the 44 north is up about 9 ft.; the lode is about 18 in. wide, of rich red ore for length of rise, 8 ft. long. The lode in the end of the rise is of the same size and quality; the draught is still playing through strongly, and at any moment we may hole to old workings.

**CONDOS COMPANY OF CHILI.**—James Secombe, July 17: The weather has been very bad, exceptionally so—in fact, it was very many years ago that bridges were swept away from the river at Santiago, as has been the case during the past week. On June 30 there were 90 tons of dressed ore (nearly all sacked) ready to be forwarded per first opportunity, and 220 tons undressed, on the floors, and 100 tons at least broken in the mine. These figures must not be taken as a guide to what the mine is capable of doing, as all the attention is given to exploring, and not stopping whatever. I am continuing the operations to the main points, which are—effecting a communication with the deep adit, and preparing for a large return next summer. As to the quantity, it will depend entirely upon men and moles, and of these I feel sure of having a much better supply than last year. From trials made, I am very perfectly satisfied that the ore can be dressed at an advance of 50 per cent., and that by so doing greater profit will be obtained than by smelting, which entails a considerable outlay in procuring fluxing materials.

**July 31:** Since my last there has been no communication with the mines, owing to the continuation of heavy storms, which will probably last for some days more, the barometer being very low. It is agreed on all sides by the residents that so severe a winter has not been experienced in Chili since 1827. The mines are, fortunately, well stocked with provisions, hence I have reason to believe that the important points of operation are going on without interruption. Bringing down mail, even from Corral Quemado, is impossible just at present, but a few dry days will make the road passable again.

**Telegrams:** The following telegrams, referring to later dates than the foregoing reports, have been received:—Valparaiso, Aug. 15—18 tons of regulus and 30 tons of raw ore will be shipped per Valparaiso (to sail Aug. 15). Mule traffic restored. Valparaiso, Sept. 7—80 tons of raw ore have been shipped per Aconcagua; 70 tons of ore at Valparaiso. Better produce. Troops doing well. Mules, 150 $\frac{1}{2}$  (query at work).

**FANULLILLO (Copper).**—F. G. Welch, Aug. 1: During July the production amounted to about 32,000 quintals, valued at \$4 per cent.; of this, however, there are 10,000 quintals in stock on spalling floors, the continuous rains of the last ten days preventing any passing of raw ore to the calcining caucuses. The M. V. ore floors being so full of metal I have stopped all drawing by the south shaft until Monday; metal, however, is being stilled in bottom plate, so that we shall have double drawing until forced.

**BRITANNIA MINERALS.**—John Edwards, Sept. 8: The lode in the winze sinking in the bottom of the 70, south of engine-shaft, is 15 in. wide, and worth for the length of the winze (12 ft.) 400 lb. for silver-lead ore. The lode in the stopes in the bottom of this level is worth 15 per fathom. The lode in the 2nd stopes in the back of this level has become small; consequently it is not yielding as much ore as last reported—now worth 6 $\frac{1}{2}$  and 12 $\frac{1}{2}$  per fathom for lead ore respectively. The machinery is in good order, and working well. The ore raised since last report is 10 tons.

**CAPE COPPER.**—The mining reports for July are received. The new shaft continues to look favourably. A winze below the 50 fathom level was in ore. The engine shaft has now reached a depth of 91 fathoms. The stopes are yielding well. Returns for July: Ocklep, 950 tons of ore of 33 per cent.; Spectacle, 13 tons of 25 per cent.; Star of Peace, 15 tons of 25 per cent.; Antonio, 555 tons of 25 per cent.; Tacona, 160 tons per Caldera; 32 tons per Tinton; 24 tons per Sir Robert McGilvray. Arrivals at Port Nolloth: The Lynwood, Raven, and Florence. Arrivals at Swansoo: The Constance, Morna, and Star of the Isle. Sales by Public Ticketing: 450 tons, on Aug. 28, at an average of 12s. 7d. per unit, realising approximately \$5000; on Sept. 11, 730 tons, at an average of 12s. 0 $\frac{1}{2}$ d. per unit, realising approximately \$13,500. Put forward for sale 730 tons on Sept. 25.

**RENSBERG.**—C. Crace, Sept. 10: Victoria shaft is being sunk with fair speed, and the lode here is producing fine stones of lead, with some blende; it is also contains much iron ore, which it did up, which is regarded as a good indication. The rich productive lode of the neighbourhood contains much of this quartz. There is no change in the 22 west since my last; lode producing some good lead and blende ore. At the 22 east we are cutting north through the lode, which is producing some good blende and lead, and looks promising for an improvement. The 14 east is producing good stones of ore, and to-day I broke a good piece of carbonate out of the end. We have not yet met with any carbonate at surface. Engine and pumps are in good condition, and working well, keeping the water under at about 13 strokes per minute.

For remainder of Foreign Mines, see to-day's Journal.]

**NEW SOUTH WALES.**—Some most satisfactory results have been obtained from mining in the gold claims at Hill End, and business there is decidedly brisker. Bayers and Holtermann's crushing of 925 ozs. from 112 tons of stone was a most unexpected result: 24 tons of the quartz yielded 836 ozs., the balance being from the remaining stone, which was much less thickly impregnated with the precious metal. The Dragon, Hermann's, Tallentire, and Beard's claim also yielded good stone, and now, later, we have news of the discovery of a rich gold-bearing vein 690 ft. below surface, the Star of Peace claim, which has inspired the holders of other claims to continue their working. The hope of getting gold in the deeper ground, the Star of Peace is now the most promising claim on the Hill, and shares command the highest price given for Hill End properties. On the Adelong diggings Ammetts and party have obtained 313 ozs. of gold from 110 tons of quartz, taken from a depth of 700 ft., where there is a splendid lead of quartz 4 to 5 ft. wide. At Major's Creek, near Bradwood, some good crushings have been realised lately. In the north, on the Glen Morrison diggings, affairs are very dull, the companies meeting with some tough stone, without obtaining a very profitable return for their labours. A small rush has taken place to Tullerang, in the neighbourhood of Gulugong, and a prospecting party obtained a fair yield. At Long Swamp, near Bradwood, there are fair prospects from some new ground. A nugget the size of a grape, containing some 50 per cent. of gold, has been unearthed at Couplara, in the Manning River district. At the Brown's Creek gold mine the last washing yielded 313 ozs. for the month's work. A third lode of copper has been struck in the Prince of Wales copper mine at Bingera. It is in the main shaft, at a depth of 13 fathoms, and consists of black and yellow rich ore. Some splendid specimens of copper, supposed to contain 90 per cent. of pure metal, have been obtained from the Coas Downs, situated between the Lachlan River and the Coah Mines, and said to be in the track of any line of railway that should go from the Coah Mines to Bathanga, on the Murray, the indications of copper are so promising as to have induced a considerable number of persons, including some from Victoria, to apply for mineral leases. Many of the gold miners on the Bathanga gold reefs have given up their search for gold, and are now working in quest for copper. The news from the tin mines at Vegetable Creek is very satisfactory, a rich lode having been discovered at a place known as the Gulf. The reef has been worked to a depth of about 30 ft., where it has a width of between 6 and 7 ft. The stone is simply magnificent, being very nearly pure tin, and full of crystals. One piece was about the size of an ordinary bag of tin, and weighed considerably over a hundred lb. weight. Ten men who have been working it in a very primitive way have been raising about 10 tons a week. It is supposed by one of the managers that with proper machinery about 100 tons of clean tin may be the weekly return.

The output of coal from Newcastle during the month amounted to 93,993 tons, of which 22,292 tons were shipped to Sydney, 1490 to Clarence River, 70 to Richmond, 25,144 to Victoria, 3851 to South Australia, 981 to Queensland, 15,709 to New Zealand, 410 to Tasmania, 5078 to San Francisco, 984 to China and Japan, 2665 to other Eastern ports; 2372 tons were taken by steamer, and 1404 tons were raised for home consumption.

It was stated by the Hon. Saul Samuel in the Legislative Council, that the South Wales represented at the Paris Exhibition of 1876.

**NEW ZEALAND.**—The tribute system on the Thames gold field, becoming widely extended, and it is principally from that source that the gold for the month (13,000 ozs.) shows an increase of 2000 ozs. on the month preceding. Dividends amounting to over 10,000 $\frac{1}{2}$  have been distributed among the land and Thames shareholders, with a beneficial result to the gold fields interests.

**NEW CALLEDONIA.**—Our correspondent writes from Noumea during the past month the events of most interest have been the arrival of an unusually large number of passengers from France. Australia. The Bousquet, ship, arrived from Marseilles ten days since, with 83 passengers, including many Government officials. By the mail news received, which has given rise to many rumours, the anxiety respecting nickel, and the closing of one of the principal mines, or the suspension of operations for the present, seemed to warrant the fears being freely bought in the home markets is supposed by some to prove the failure. The uncertain state of politics in Europe exercises a paralyzing influence over even old-established industries, then how much more with regard to new works are established and in course of building in France for the smelting of ore; and those best capable of judging assert that time only will tell of the more tranquil state of politics in Europe, in order to insure the full development of the nickel riches of this colony. Fluctuations are to be expected, and so, in a comparatively new industry, but the fact of nickel having a reliable and of its being applicable to such a variety of uses, in a guarantee to all likely sectors of good nickel mines that their property is of great value.—The mail, commencing next August, has been secured by the New Zealand Company.—The Sydney Morning Herald of July 27.

#### Registration of New Companies.

The following joint-stock companies have been duly registered:

**KIT HILL TUNNEL (Limited).**—Capital 25,000 $\frac{1}{2}$ , in 50 shares. Business as tunnel, tramway, and water-course proprietors, as well as smelters, metallurgists, &c. The subscribers are—S. H. Embley, 1000; John House, Brixton Rise, engineer, 1000; John Pass, Weston-street, Brixton, 1000; S. G. Schofield, Grosvenor House, Finsbury Park, accountant, 1000; Garrett, 97, New Kent-road, civil service, 1000; F. Elieher, Mortlock Green, 1000. The managing director will be Mr. S. H. Embley, at a salary of per annum, and a commission of 5 per cent. upon all dividends paid. The director will be Mr. L. S. Miller, at a salary of 1500 yearly.

**BLAYDON COLOUR COMPANY (Limited).**—Capital 2000 $\frac{1}{2}$ , in 100 shares. To carry out an agreement made between the Blaydon Manure and Alkali Company (Limited) and T. W. B. Mohr, and also another agreement between T. W. B. Mohr and J. T. Merz, whereby the company will carry on business as dealers in Prussian blue and other colours, also in minerals and metals. The subscribers (who take one share each) are—T. W. B. Mohr, Blaydon, Newcastle, agent; R. G. Watson, Newcastle, agent; J. T. Merz, Newcastle, agent; J. H. Down, Birmingham, metallurgist.

**THE BARROW IN FURNACE AND THE NORTHERN COUNTRIES INVESTMENT COMPANY (Limited).**—Capital 100,000 $\frac{1}{2}$ , in 10,000 shares. To acquire land at Carnforth, Askrigg, in Furness, Morecambe, and St. Bees. The subscribers (who take two shares each) are—William Young, Barrow, 1000; Routledge, Barrow, 1000; A. M. Gowan, Barrow, 1000; James Ward, Barrow, 1000; Ulverston, John Cleator, Barrow, 1000; James Ward, Barrow, 1000; 100 shares.

**WESTERN PROVINCIAL LAND COMPANY (Limited).**—Capital 100,000 $\frac{1}{2}$ , in 10,000 shares. To carry on business as a land and investment company, principally at Bristol. The subscribers are—George Bragg, 10, Castle-street, Bristol, 1000; J. P. Hovew, Rodney-place, Ringwood Hill, near Bristol, 1000; A. P. Mordaunt, Gloucester-row, Clifton, 1000; G. White, Bristol, 1000; J. W. Young, Ringwood, 1000; 100 shares.

**THOMAS HARTLEY AND CO. (Limited).**—Capital 20,000 $\frac{1}{2}$ , in 20,000 shares. To take over the Rosendale Soap Works at Constable, Rawtenstall, Lancashire. The subscribers (who take two shares each) are—W. Greaves, Springfield House, F. W. Greaves, Springfield House, Bacup; T. Barrowclough, Bacup; J. R. Pilling, Bacup. **CALAN LEAD MINING COMPANY (Limited).**—Capital 20,000 $\frac{1}{2}$ , in 20,000 shares. To work minerals upon a farm in the occupation of Mr. Thomas Roberts, of Cardigan. The subscribers (who take one share each) are—W. Bowman, Cardigan; George Bedford, Round Tree House, Upper Traw, Colchester; H. Verden, Great Winchester-street; W. R. Moore, the Laurels, Thornton; H. T. Halford, 26, Change-alley, stockbroker. The directors are—W. Brookes, W. Bowman, and Thomas Saunders.

**NANT COCH IRON MINING COMPANY (Limited).**—Capital 10,000 $\frac{1}{2}$ , in 10,000 shares. To adopt an agreement made between W. Pedder, of Union-county, John Parkinson, of Great Dover-street, for working mines in the parish of Llayns and Llanharrold, Denbigh, the consideration money for which the subscribers (who take one share each) are—John Gwynne, 30, New Street, mining engineer; F. W. Smith, 6, Union-county, accountant; W. H. M. 32, Dod-street, accountant; John Parkinson, 183, Great Dover-street, lawyer; H. T. Cameron, Bythorn street, Brixton, barrister; B. C. Hoole, Harcourt Harrow, barrister; J. G. Manton, 10, Union-county, Old Broad-street, lawyer.

**TREFFRIW MINING COMPANY (Limited).**—Capital 1000 $\frac{1}{2}$ , in 10,000 shares. To acquire the interest of Mr. J. E. Jones, of Treffriw Mills, on a tack of minerals under land, in the parish of Llanrhydy, and township of Glyn Carnarvon, for the sum of 4000 $\frac{1}{2}$ . The subscribers are—T. J. Collingwood, Glyn Carnarvon, 1000; E. Rogers, Betswood, miner, 50; John Gwynne, Treffriw, clerk in holy orders, 100; G. Wynne, Treffriw, 50; O. E. Hulse, quarry Treffriw, 50; J. E. Jones, Treffriw, 100; H. Bagh, Liverpool, clerk in holy orders, 100. The company is registered with Articles.

**MONTPELIER ESTATE AND SECURITIES COMPANY (Limited).**—Capital 20,000 $\frac{1}{2}$ , in 10,000 shares. This is a Lancashire land and building company, subscribers (who take one share each) are—Richard Lewis, Southport; Simpson, Greenhalgh, Rochdale; W. W. Hayes, Westfield, near Liverpool; Harrison, Southport; J. Findal, Birkdale, Southport; W. H. Johnson, Southport; N. B. Jackson, Southport.

**BULCH BANK DYING COMPANY (Limited).**—Capital 10,000 $\frac{1}{2}$ , in 10,000 shares. To acquire dyeworks at Rochdale. The subscribers (who take one share each) are—O. L. Whitaker, Highfield, Haslingden; J. Walton, Haslingden; A. Whitaker, Haslingden; W. J. Porritt, Helmsdale; T. Fether, Denton; Manchester; J. T. Cronshaw, Haslingden; J. L. Cronshaw, Haslingden; Barnes, Accrington.

**ABERCORN BREWERY COMPANY (Limited).**—Capital 5000 $\frac{1}{2}$ , in 50,000 shares. To take over a brewery in Monmouthshire.

**INDICATOR FOR MINING SHAFTS.**—Mr. CALVIN O. RICHARDSON, San Francisco, has patented an invention which consists of a having a spring tongue or clapper that vibrates easily, so that the bell is attached to the hoisting rope of a mining shaft, or tub or cage descending, the clapper will strike the bell when it is a slight checking or variation in speed, which is caused by momentum of the clapper overcoming the slight resistance of the spring tongue. This warning is given of the descent of the spring tub. A more violent ringing is caused as the tub approaches bottom, by the brakeman making a few sudden pressures upon the brake, thus warning the workmen to stand from under.

**MILLSTONE DRESSING MACHINE.**—Mr. FRANK MILLER, Michigan, has patented an invention to furnish a device for dressing millstones which will keep a perfectly true surface of stone, and will feed the cutter forward automatically as each stone is made. The invention consists in a combined frame and slotted pivoting bolt, pivoted slotted lever, sliding cross-head, a pawl, ratchet-wheel and a sawed screw adapted for use in the millstones. A small rectangular frame is placed perfectly true to the inner end of which an arm projects which is slotted longitudinally to receive a bolt, by which the inner end of the lever is pivoted. The inner end of the lever is slotted longitudinally to be able to receive a pivoting bolt, so that the said lever may be adjusted to cause the cuts to approach each other at a more or less angle, as may be desired. The lever rests and vibrates on the top of the frame and arm. The part of the lever that is in the frame has longitudinal flanges formed upon its upper and sides, to serve as ways for a cross-head to slide upon. To the head is pivoted the end of a pawl, which rests upon the said cross-head. The cutter makes the cuts as the cross-head is drawn in and as the said cross-head is pushed outward the engaging pawl strikes against the teeth of the ratchet-wheel and turns the screw. As the screw is turned by the outward movement of the cross-head the lever will be moved laterally to bring the construction into position for making another cut. With this construction the lever will be dressed from the eye to the skirt, just the same as will wear, facing the stone at the eye or centre, and cracking the skirt.

**HOLLOWAY'S OINTMENT AND PILLS—OLD SORES, WOUNDS, ULCERS.**—The readiness with which Holloway's ointment removes all sorts of sores, and the efficacy of his pills in curing the most obstinate of the skin surrounding the diseased part should be fomented, dried, and rubbed with the ointment. This will give purity to the blood and lead to the weakened nerves, the only condition necessary for the cure of the hideous ulcerations which render life almost intolerable. As men's protective power exerted than the destructive process ceases, and new healthy growths appear to fill up lately excavated pits.

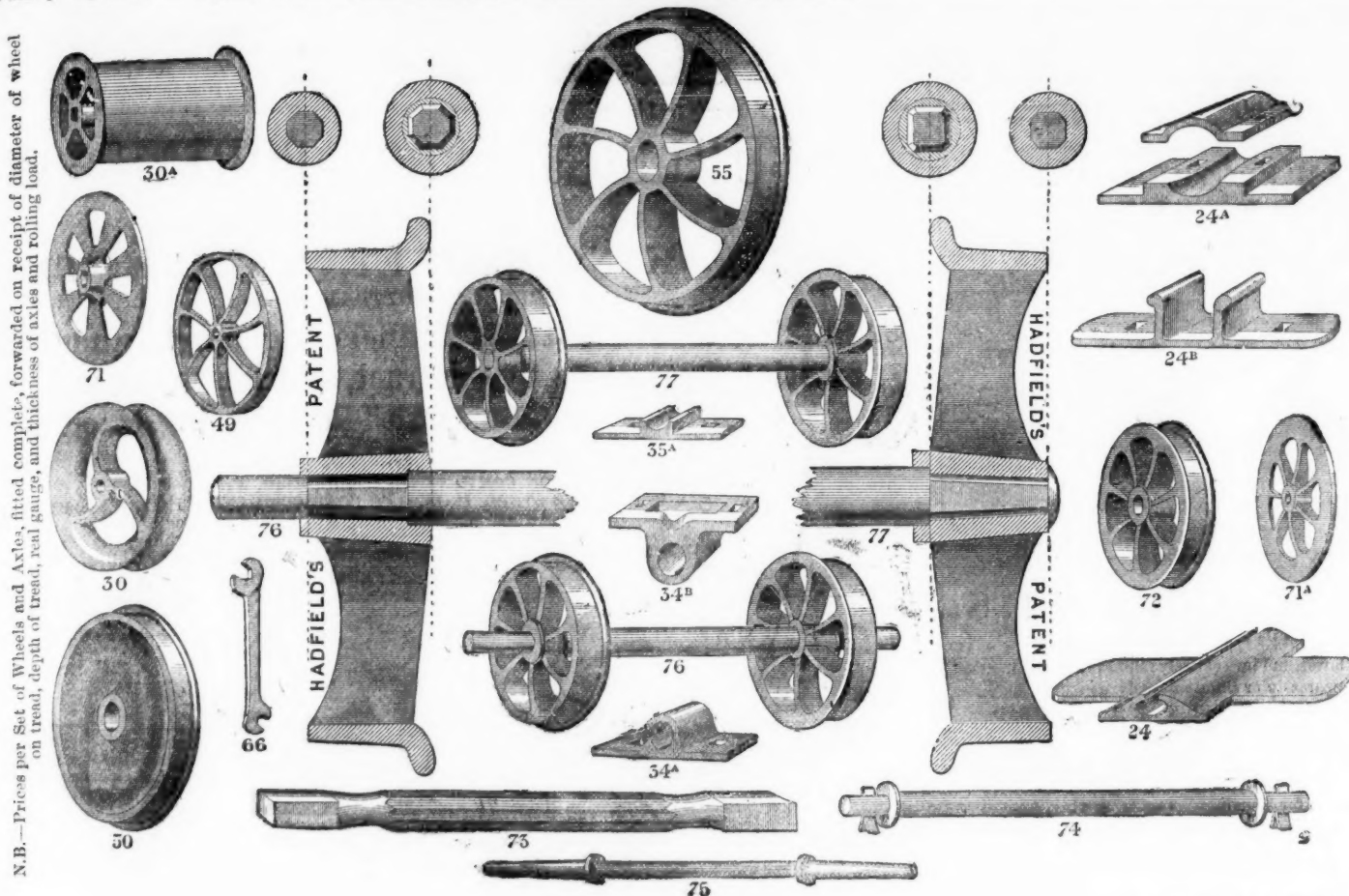


DEVOTE THEIR EXCLUSIVE ATTENTION TO THE MANUFACTURE OF

AND ARE THE SOLE MAKERS OF

## HADFIELD'S CRUCIBLE STEEL WHEELS.

One of our departments is specially adapted for the manufacture of these Wheels (as shown below), for Collieries, Ironstone Mines, Slate Quarries, Ironworks, Lead Mines, &c., &c. We have made, and are now making, many HUNDRED THOUSANDS; and having Patented a New Method of Fitting Wheels upon axles, being cheap, effective, and expeditious, we can execute orders entrusted to us with promptitude, our capacity in this department alone being equal to about 2000 wheels per week.



[This Sheet of Drawings is Copyright.]

## HADFIELD'S PATENT METHOD OF FITTING WHEELS UPON AXLES.

The advantages of the above system are that the Wheels being forced upon a Taper Square-ended Axle, by Machinery, and then riveted (the machine securing truth), it is impossible that they can come loose or get within gauge. They are very cheaply fitted on, and run exceedingly true.

We construct the Arms of wheels upon the curved principle (as shown in the drawings above), consequently the shrinkage or cooling of the Castings is not interfered with, thus securing great advantages of our very strong material.

DUCTIBLE CAST-STEEL WHEELS, when cast by us, are made from one-third to one-half lighter than Cast-Iron. They cannot be broken while working, even with rough usage, and will last at least twelve times as long as Cast-Iron, thus saving animal and steam power and reducing wear and tear immensely.

We would also draw special attention to our INCLINE PULLEYS and CAGE GUIDES, the adoption of which will prove highly advantageous.

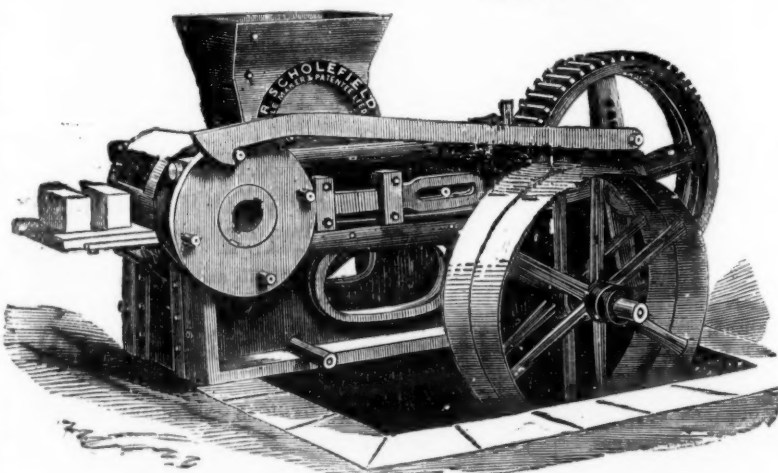
**THE HOME FARM COLLIERY.**—Operations have been commenced pumping the water from the chasm caused by the inundation at the Home Farm Colliery, near Hamilton, in January. It will be remembered that a portion of the roof in the ell workings of the mine caved in, so that the pit in a short space was inundated and silted up, four men losing their lives, and that a loch was formed in the ground at Clydeside, 6 acres in extent, and some 18 ins. deep, into the hole in the rock, which loch has remained filled with water since. It should also be explained that not a third of the seam in the colliery has been wrought. About one-third of the coal is still unscratched, and of the splint fully one-half is to be taken out. The pumping operations are to be conducted by the late lessees of the colliery, Messrs. Hamilton, McCulloch and Co. The apparatus has been erected under the superintendence of Mr. Kirkwood, the managing partner of the firm, by John Ball engineers, Warriston.

platform situated between the south bank of the Clyde and the shore, or 30 ft. from the water edge, and 90 ft. from the bank. There, there have been erected two horizontal engines of about 100-horse-power each, and the motive-power is supplied from two vertical boilers. The pumping apparatus—two 10-in. centrifugal pumps—are placed at the water edge. Wire-ropes connecting the pumps with the engines pass round a grooved wheel at the water edge, which wheel causes in turn two fly-wheels 6 ft. in diameter to revolve with great rapidity. The lifting power of the centrifugal pumps is 9000 gallons per minute, and as it is estimated that the river discharges 100,000,000 gallons of water; a month will elapse before the river will be cleared. The water thus dislodged is conducted through two pipes of about 1 ft. in diameter into a large vertical tank, behind the engine, and thence by means of 20-in. fire-lay pipes taken through the embankment runs into the Clyde. For a short time it appeared a great obstacle in the way was a risk of the river bursting; but this was overcome by Mr. Kirkwood, who suggested the system already mentioned, which, being 14 ft. above the level of the river's embankment, effectually disposes of all fears of bursting. An additional difficulty consisted in arranging the pumps so as to keep the pumps always at the water-edge, as the river gradually fell in the chasm. This obstacle was also met by the use of a crane and chain placed in the rear of the engines. The water in the lock contains a sediment of alum, causing it to be unusable for use in the boilers. The water for this purpose is drawn from the Clyde by means of a pipe. Coal and slag will be brought to the spot by means of a tramway laid betwixt the pithead and the chasm, which are one mile apart. The water is then raised

...as the water recedes, wherever they show signs of  
...The result of the pumping will set at rest whether the  
...of the water which fills the chasm is the Clyde or the channel  
...If the latter the pumps will be kept up permanently, and it is  
...throughout the colliery may be worked with perfect safety. The  
...of the mine, meanwhile, have been cleared to the doorheads,  
...It has been found that the workings are completely silted up  
...of the operations is looked forward to with extraordinary  
...—*Glasgow Herald.*

**R. SCHOLEFIELD'S  
LATEST PATENT BRICK-MAKING MACHINE.**

PATENTED 1873.



R. S. begs to call the attention of all Colliery Owners in particular to his PATENT SEMI-DRY BRICK MACHINE, and the economical method of making bricks by his patent machinery from the refuse that is taken from the pits during the process of coal-getting, which, instead of storing at the pit's mouth (and making acres of valuable land useless), is at once made into bricks at a very small cost, by R. S.'s Patent Brick-making Machinery. If the material is got from the pit hill, the following is about the cost of

production, and the hands required to make 10,000 pressed bricks per day:—

[illegible]

Total cost of making 10,000 pressed bricks ... .. \$1 5 0, or 3s. 6d. per 1000.

(SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

N. B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging.

As the above Machinery is particularly adapted for the using up of shale, bind, &c., it will be to the advantage of all Colliery Owners to adopt the use of the said Brick-making Machinery.

THE MACHINES CAN BE SEEN IN OPERATION AT THE WORKS OF THE SOLE MAKER AND PATENTEE DAILY.  
**SCHOLEFIELD'S ENGINEERING & PATENT BRICK MACHINE WORKS**  
**KIRKSTAL ROAD, LEEDS.**



NOTICE TO COLLIERY OWNERS, AND OTHERS.

**ALDER AND SEWELL,**  
Engineers, Ship & Engine Smiths,

MANUFACTURERS OF  
PIT CAGES, KEPS, TUBS AND SCREENS; FLAT, BALANCE,  
COUPLING AND CRANE CHAINS AND TANKS,  
**RICHMOND STREET IRONWORKS,**  
MONKWEARMOUTH, SUNDERLAND.

PRICES ON APPLICATION.

Increased Value of Water-Power.

**MAC ADAM'S VARIABLE  
TURBINE.**

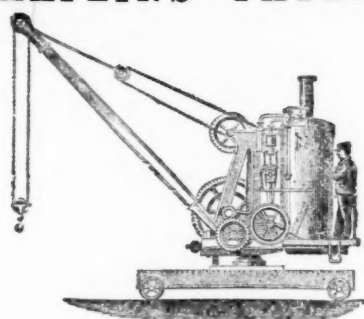
This wheel (which is now largely in use in England, Scotland, and Ireland) is the only one yet invented which gives proportionate power from both large and small quantities of water. It can be made for using a large winter supply, and yet work with equal efficiency through all variations of quantity down to a fifth, or even less if required. It is easily coupled to a steam-engine, and, in this way always assists it by whatever amount of power the water is capable of giving, and, therefore, saves so much fuel.

This Turbine is applicable to all heights of fall. It works immersed in the tail-water, so that no part of the fall is lost, and the motion of the wheel is not affected by floods or back-water.

References to places where it is at work will be given on application to—

**MAC ADAM BROTHERS AND CO.,**  
BELFAST.

CHAPLINS' PATENT



**STEAM CRANES,**  
15 Cwts. to 20 Tons,

Geared to hoist or lower, and turn entirely round in either direction  
by steam, separately or simultaneously, as required.

STEAM AND HAND DERRICK AND OVERHEAD  
TRAVELLING CRANES.

CONTRACTORS' LOCOMOTIVES.  
STATIONARY ENGINES,

Also GEARING, for Winding, Pumping, Sawing, &c.

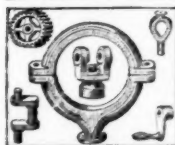
PATENTEES AND SOLE MANUFACTURERS:

**ALEXANDER CHAPLIN AND CO.,**  
CRANSTONHILL ENGINE WORKS.

GLASGOW.

LONDON HOUSE:

**M'KENDRICK, BALL, AND CO.,**  
40, QUEEN VICTORIA STREET, LONDON, E.C.



MALLEABLE IRON CASTINGS,

Every Description.

**W. B. MAPPLEBECK, JUN.,**  
21 AND 22, LOVEDAY STREET,  
BIRMINGHAM.

BICKFORD'S PATENT

FOR CONVEYING

CHARGE IN



SAFETY FUSE

FIRE TO THE

BLASTING ROCKS, &amp;c.

Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862 and 1874, in London; at the "IMPERIAL EXHIBITION," held in Paris, in 1855; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; at the "UNIVERSAL EXHIBITION," in Paris, 1867; at the "GREAT INDUSTRIAL EXHIBITION," at Atlanta, in 1869; TWO MEDALS at the "UNIVERSAL EXHIBITION," Vienna, in 1873; and at the "EXPOSICION NACIONAL ARGENTINA," Cordova, South America, 1872.



**BICKFORD, SMITH AND CO.,**  
OF TUCKINGMILL, CORNWALL; ADELPHI  
BANK CHAMBERS, SOUTH JOHN STREET, LIVER-  
POOL; and 85, GRACECHURCH STREET, LONDON,  
E.C., MANUFACTURERS AND ORIGINAL  
PATENTEES OF SAFETY-FUSE, having been in-  
formed that the name of their firm has been attached to  
fuse not of their manufacture, beg to call the attention of  
the trade and public to the following announcement:—

EVERY COIL OF FUSE MANUFACTURED by them has TWO SEPARATE  
THREADS PASSING THROUGH THE COLUMN OF GUNPOWDER, and BICK-  
FORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS as  
THEIR TRADE MARK.

G. HUTCHINSON AND CO.,

FORTH BANKS OIL WORKS,  
NEWCASTLE-ON-TYNE,

Beg to draw the attention of COLLIERY OWNERS and ENGINEERS to the Oils  
prepared by their special process. They never clog nor corrode, but keep the  
bearings cool and clean, and will be found the best and most ECONOMICAL  
LUBRICANTS at present in the market, being very DURABLE, UNIFORM IN  
QUALITY, and CHEAP. Prices, from 2s.

SPECIALLY ADVANTAGEOUS RATES FOR LARGE CONSUMERS.

References to many eminent firms who have used them constantly for years,  
amongst whom may be mentioned Sir W. Armstrong and Co.; Elswick Engine  
and Ordnance Works, Newcastle; R. Stephenson and Co., Engineers, Newcastle;  
E. and W. Hawthorn, Engineers, Newcastle; Hawkes, Crawshaw, and Sons, En-  
gineers, Gateshead-on-Tyne; Abbot and Co., Engineers, Gateshead-on-Tyne.  
Samples, prices, &c., on application. AGENTS WANTED.

MAPS OF THE MINES, AND OF UTAH TERRITORY.

**FRISOETH'S NEW AND REVISED MAP FOR 1875.**  
Size 40 by 56 inches, scale 5 miles to the inch. Handsomely engraved, co-  
loured in counties, showing the Towns, Settlements, Rivers, Lakes, Railroads,  
Mining Districts, &c., throughout the Territory, and all the Government Surveys  
to date. Mounted on cloth. £2; half-mounted, £1 12s.; pocket form, £1.

Also, GENERAL MINING MAP OF UTAH, showing twenty-eight of the  
principal Mining Districts adjacent to Salt Lake City, and location of the most pre-  
minent mines. Price, pocket form, 6s.

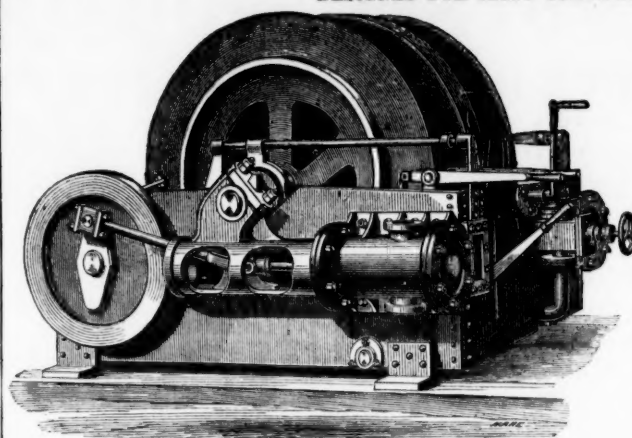
For sale, and supplied by—  
TRUBNER and Co., 87 and 89, Ludgate Hill, London; or  
B. A. M. FRISOETH, Salt Lake City, Utah, U.S.

# STEVENS' PATENT UNDERGROUND WINDING ENGINE

DESIGNED FOR USING COMPRESSED AIR OR STEAM,

SIMPLE, COMPACT, PORTABLE.

Silver Medal, Royal Cornwall Polytechnic Society, 1876.



No. 1 size, 7 in. single cylinder, with 2 ft. drums.

No. 2 size, 9 in. single cylinder, with 2 ft. 6 in. drums.

Larger sizes made with two cylinders.

A,— 6 in. double cylinder, with 2 ft. 3 in. drums.

B,— 8 in. " " 3 ft. 0 in. drums.

C,— 10 in. " " 3 ft. 6 in. drums.

D,— 12 in. " " 4 ft. 6 in. drums.

MANUFACTURED BY

**THE USKSID CO.,**  
ENGINEERS, MAKERS OF PUMPING AND WIND-  
MACHINERY, AND FORGINGS OF EVERY  
DESCRIPTION,

**NEWPORT, MON.**  
Agents for the six Northern Counties—  
TANGYE BROS. AND RAKE, ST. NICHOLAS BUILDING,  
NEWCASTLE-ON-TYNE.

[This Advertisement appears fortnightly.]

## The "BURLEIGH" ROCK-BORING COMPANY (LIMITED).

100, KING STREET, MANCHESTER.

RICHARD MOTTRAM, Secretary.

For Sinking Shafts, Cutting Tunnels and Levels, and General Ro-  
Blasting Operations by Contract, and for the Sale or Letting  
on Hire of the "Burleigh" Rock Boring Machines.

References permitted to—

Messrs. BOLCKOW, VAUGHAN, AND CO. (LIMITED), Middlesborough.

" THE DOWLAIS IRON COMPANY (LIMITED), South Wales.

" THE EBBW VALE STEEL, IRON, AND COAL COMPANY (LIMITED), South Wales.

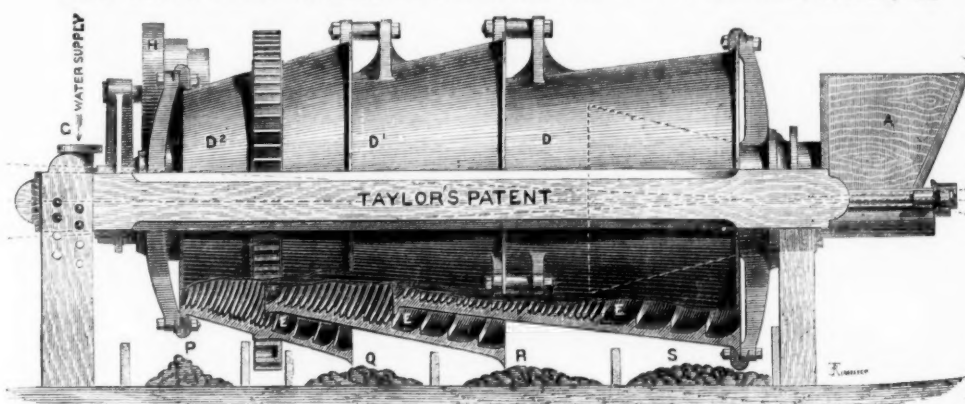
" THE CRUMLIN VIADUCT WORKS COMPANY (LIMITED), South Wales.

" T. T. J. WALLER, Esq., Railway Contractor, Gisborne, near Skipton.

" TURNER AND SON, Limestone Quarries, Kiverton Park, near Sheffield.

CATALOGUES AND PRICE LISTS OF MACHINERY FORWARDED ON APPLICATION TO THE COMPANY'S OFFICE.

FIRST SILVER MEDAL AWARDED BY THE ROYAL CORNWALL POLYTECHNIC SOCIETY, 1876.



## TAYLOR'S PATENT DRUM DRESSER

FOR SEPARATING AND SIZING MINERAL AND OTHER SUBSTANCES.

By the aid of this invention any materials, which are of different specific gravity, can be concentrated and sorted mechanically while in the case of ores the fine mineral is brought up with the larger particles instead of being washed into the waste—a most important feature.

This machine uses very little water in proportion to the quantity of material treated, and will be found a most useful and efficient dressing apparatus.

For further particulars, and to see machines at work, apply to the Patentee,

**H. E. TAYLOR, 15, Newgate Street, Chester.**

## THOMAS TURTON AND SONS,

MANUFACTURERS OF

MINING STEEL of every description.

CAST STEEL FOR TOOLS. CHISEL SHEAR, BLISTER, &amp; SPRING STEEL.

MINING TOOLS &amp; FILES of superior quality.

EDGE TOOLS, HAMMERS, PICKS, and all kinds of TOOLS for RAILWAYS, ENGINEERS, CONTRACTORS, and PLATELAYS.  
LOCOMOTIVE ENGINE, RAILWAY CARRIAGE and WAGON SPRINGS and BUFFERS.

**SHEAF WORKS AND SPRING WORKS, SHEFFIELD**

LONDON OFFICES.—35, QUEEN STREET, CITY. PARIS DEPOT.—12, RUE DES ARCHIVES.  
NEW YORK STORE.—102, JOHN STREET.

## MANCHESTER WIRE WORK.

NEAR VICTORIA STATION, MANCHESTER

(ESTABLISHED 1790).

**JOHN STANIAR AND CO.,**  
Manufacturers by STEAM POWER of all kinds of Wire Web, EXTRA TREBLE STRONG for

LEAD AND COPPER MINES.

Jigger Bottoms and Cylinder Covers woven ANY WIDTH, in Iron, Steel, Brass, or Copper.

EXTRA STRONG PERFORATED ZINC AND COPPER RIDDLES AND SIEVES.

Shipping Orders Executed with the Greatest Dispatch.



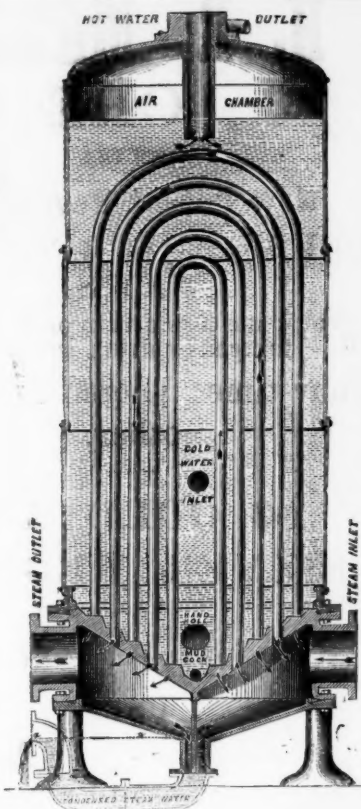
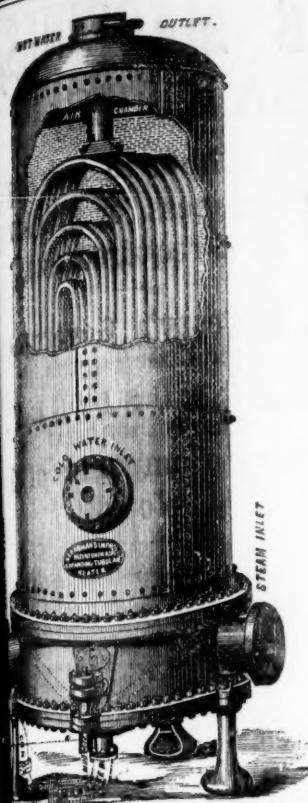
IMPORTANT.

# JOSEPH WRIGHT AND CO.

(LIMITED),

NEPTUNE FORGE ENGINE  
AND BOILER WORKS,

TIPTON, STAFFORDSHIRE.



Having purchased the Engineering Business lately carried on by R. BERRYMAN AND CO., at 23, Congreve-street, Birmingham, and 28, Wilson-street, Finsbury-square, London, have removed the same to their Works at TIPTON, to which place ALL COMMUNICATIONS SHOULD IN FUTURE BE ADDRESSED, and where the BERRYMAN HEATER can be seen at work, and in every stage of manufacture.

Being the SOLE MAKERS and PATENTEES of these CELEBRATED COAL SAVERS and EXHAUST STEAM UTILISERS, and having remodelled and greatly improved them, adding largely to the HEATING SURFACE and WATER CAPACITY, J. W. and Co. have put down a special plant, which includes an entire new set of improved patterns, enabling them to offer these FEED WATER HEATERS to the public at

**GREATLY REDUCED PRICES.**

This arrangement of BRASS TUBES of a great length giving an enormous HEATING SURFACE makes this HEATER not only the MOST POWERFUL ever invented, but its FIRST COST PER UNIT OF HEATING SURFACE IS LESS THAN HALF THAT OF ANY OTHER. It will condense the whole of the Exhaust Steam from the Engine if required, and entirely does away with the NOISE and BACK PRESSURE from exhaust pipes.

ALL THE TUBES ARE OF SPECIALLY PREPARED SOLID DRAWN BRASS AND COPPER; both ends are expanded into the bored holes of the same Tube Plate, METAL TO METAL, and every tube is free to expand and contract independent of each other. Leakage is impossible, as, when the tubes are once fixed, nothing short of cutting out will remove them. No scurf adheres to the tubes because of the difference of expansion between SCURF and BRASS. The inside of the Heater can be washed out by means of the mud cock and hand hole whilst at work.

Only one pump or injector is required, and as the Heater is placed between the pump and the boiler, the water is forced, COLD, into it, and passes out at the top HOT into the boiler direct. Where the WATER WORKS PRESSURE is sufficient no pump or injector is needed.

The water being heated to BOILING POINT UNDER PRESSURE in the Heater, a saving of from 20 per cent. to 25 per cent. in fuel is effected; the disastrous results of grease in boilers are also avoided, and sewage and other loose matter in the water being deposited in the Heater, the acids are liberated there instead of in the boiler.

Every part can be lined with BRASS, COPPER, or LEAD, as may be required in special cases for heating water or any kind of liquor in large quantities for CHEMICAL WORKS, BATHS, WASH-HOUSES, AQUARIA, GREENHOUSES, BREWERIES, WOOL WASHING, DYE WORKS, TANNERIES, &c., &c.; they will also HEAT AIR FOR CUPOLAS AND BLAST FURNACES, and are at work as INTERHEATERS for compound engines with direct steam from the boiler with a further saving of 15 per cent.

The New Price List, with detail information, is now ready, and will be sent on application, together with an Illustrated Catalogue, with references and testimonials from Firms using two HUNDRED AND THIRTY-THREE of these Heaters.

## BOLTS, NUTS, AND COACH SCREWS.

ARCHER AND HARPER,

PROVIDENCE BOLT AND NUT WORKS, THE GREEN, DARLASTON,

Manufacturers of all kinds of Shipbuilders' Engineers' Coach, Wagon, and Fish Bolts: Coach Screws; Railway Spikes and Brobs; Hot-pressed and Forged Nuts, Rivets, Washers, &c., &c.

SHIPBUILDERS' AND RAILWAY STORES' CONTRACTORS.



## BARROWS & STEWART, ENGINEERS, BANBURY,

MANUFACTURE



BARROWS & STEWART, Engineers, BANBURY.

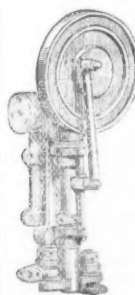
LAMBERT BROTHERS,  
Alpha Tube and Fitting Works,  
WALSALL.

Boiler Tubes, Hydraulic Tubes,  
Sluice Valves, Hydrants,  
Stop and Draw-off Cocks,  
Boiler Mountings,  
Safety Valves, Pumps, &c.

ALEXR. WILSON & CO.,  
VAUXHALL IRONWORKS,  
LONDON, S.W.,

MANUFACTURERS OF

THE VAUXHALL DONKEY PUMPS.  
THE EXCELSIOR DIRECT-ACTING  
PUMPS.  
HIGH-PRESSURE SCREW ENGINES  
COMPOUND SCREWS ENGINES.  
PATENT SURFACE CONDENSING  
ENGINES.  
PATENT PADDLE ENGINES.  
HOISTING MACHINERY.



ILLUSTRATED AND PRICED CATALOGUES ON APPLICATION.

MR. W. F. STANLEY, MATHEMATICAL INSTRUMENT  
MANUFACTURER TO H.M.'S GOVERNMENT, COUNCIL OF INDIA  
SCIENCE AND ART DEPARTMENT, ADMIRALTY, &c.  
MATHEMATICAL, DRAWING, and SURVEYING INSTRUMENTS of every  
description, of the highest quality and finish, at the most moderate prices.  
Price-list post free.  
ENGINE DIVIDER TO THE TRADE.  
ADDRESS—GREAT TURNSTILE, HOLBORN, LONDON, W.C.



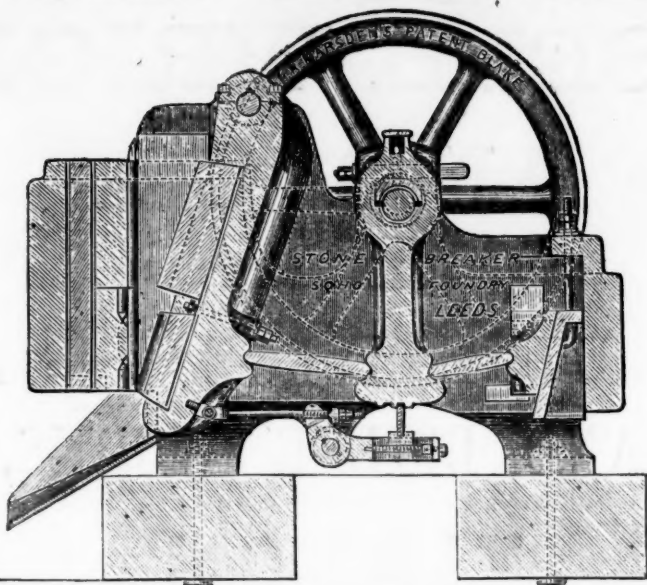
# H. R. MARSDEN, PATENTEE AND ONLY MAKER **BLAKE MACHINES,** OF THE WELL-KNOWN **ORE CRUSHERS AND STONE BREAKERS,**

WITH THE  
**New Patent Reversible  
CRUSHING OR CUBING  
JAWS,**

WHICH ARE CONSTRUCTED OF A PECULIAR  
MIXTURE OF METAL, WEARING  
**Four times longer than any  
other.**

**60 GOLD AND  
SILVER MEDALS.**

**OVER 2000 NOW IN  
USE.**



For Crushing to any degree  
of Fineness, or Breaking  
to a required size.

Her Majesty's Government  
USE THESE MACHINES  
**EXCLUSIVELY**  
ALSO ALL THE GREAT  
Mining Companies of the  
World.

H. R. M. has long observed the want of cheap  
machines,

**STONE AND ORE CRUSHERS**  
And has at length, by means of improved appliances  
for the production thereof, been enabled to reduce  
the price, yet keep up at the same time the  
known strength of construction. Reduced price  
on application.

**FIFTY per Cent., and upwards, saved by using these Machines.**

TESTIMONIAL FROM MESSRS. JOHN TAYLOR AND SONS.

6, Queen-street-place, May 10, 1877.  
DEAR SIR,—We have adopted your Stone Breakers at many of the mines under our management, and are pleased to be able to state that they have in all cases given the greatest satisfaction. We are, yours faithfully,  
JOHN TAYLOR AND SONS.

H. R. Marsden, Esq.

INTENDING BUYERS ARE CAUTIONED AGAINST PURCHASING OR USING ANY OF THE NUMEROUS PATENTS OF H. R. MARSDEN.  
ILLUSTRATED CATALOGUES, TESTIMONIALS, and every information, on application to:—

**H. R. MARSDEN, SOHO FOUNDRY, LEEDS, ENGLAND.**

DERBY SHOW, SEPT. 18 and 19.—H. R. MARSDEN, of Leeds, will exhibit in full operation one of the well-known BLAKE STONE BREAKERS and ORE CRUSHERS, fitted on wheels with a lifting apparatus, and also fitted with the NEW PATENT REVERSIBLE CUBING JAW, which last FOUR TIMES LONGER THAN ANY OTHER. Parties desiring to see their own material crushed or broken are requested to bring samples with them.

DEAR SIR,—I have broken over 40,000 tons of very hard LIMESTONE into ROAD METAL at the Newport and other Road Trusts, in your PATENT STONE BREAKER, AND ALL THE ONE PAIR OF JAWS, which are STILL IN USE. I do not think at all, but am quite sure, are the only Machines which fully perform the work you set them out to do, and there are in the Show can at all compare with them.  
Yours, truly,  
H. R. Marsden, Esq.

WILLIAM PRICE, Contractor, Gold Cliff, Monmouth.

Royal Agricultural Show, Liverpool, July, 1876.

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